2015-1045

IN THE
UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

ACCO BRANDS CORPORATION,
Appellant,

v.

FELLOWES, INC.,
Appellee.

Appeal from the United States Patent and Trademark Office Patent Trial and Appeal Board

---

CORRECTED PRINCIPAL BRIEF OF APPELLANT ACCO BRANDS CORPORATION

Steven R. Trybus
Principal Counsel
Peter J. Brennan
Michael G. Babbitt
Jenner & Block LLP
353 N. Clark Street
Chicago, Illinois 60654-3456
Telephone: (312) 222-9350

Richard L. Kaiser
Michael Best & Friedrich LLP
100 East Wisconsin Avenue
Milwaukee, Wisconsin 53202
Telephone: (262) 956-6576

Attorneys for Appellant
ACCO Brands Corporation

January 30, 2015

CERTIFICATE OF INTEREST

Pursuant to Rule 26.1 of the Federal Rules of Appellate Procedure and Federal Circuit Rule 47.4, Appellant ACCO Brands Corporation makes the following disclosures:

1. The full name of every party or amicus represented by me is:

   ACCO Brands Corporation

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by me is:

   None

3. All parent corporations and any publicly held companies that own 10 percent of more of the stock of the party or amicus curiae represented by me are:

   ACCO Brands Corporation is a publicly traded corporation. It does not have any other parent corporation and is not aware of any publicly held corporation that owns 10% or more of its stock.

4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court are:

   Steven R. Trybus
   Peter J. Brennan
   Michael G. Babbitt
   Jenner & Block LLP
   353 North Clark Street
   Chicago, Illinois 60654

   Richard L. Kaiser
   Michael Best & Friedrich LLP
   100 East Wisconsin Avenue
   Milwaukee, Wisconsin 53202

By: */s/Steven R. Trybus*

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Page(s)

CASES

STATUTES

OTHER AUTHORITIES

STATEMENT OF RELATED CASES

No other appeal from this *inter partes* reexamination proceeding has been before this or any other appellate court.

Ongoing, but currently stayed, district court litigation between the parties, *Fellowes, Inc. v. ACCO Brands Corporation*, Related Nos. 10-cv-07587, 11-cv-4229, 11-cv-08148 (N.D. Ill.) (Leinenweber, J.), may be affected by the outcome of this appeal.

An ongoing *inter partes* reexamination between the parties, Control No. 95/001,736 regarding U.S. Patent No. RE 44,161 ("RE '161"), may also be affected by the outcome of this appeal. The claims of RE '161 share language with the claims of the patent-at-issue here, U.S. Patent No. 7,963,468 ("the '468 patent"). (*See* A4459-61; A0061.) RE '161 was a reissue of U.S. Patent No. 7,631,822 ("the '822 patent"), and the '468 patent issued from an application that was a continuation of the application that led to the '822 patent. (*See* A4441; A0043.)

Counsel for Appellant ACCO Brands Corporation ("ACCO") are not aware of any other cases pending in this or any other court that will directly affect, or be directly affected by, this Court's decision here.

JURISDICTIONAL STATEMENT

This Court has jurisdiction over this appeal from a final decision of the United States Patent Trial and Appeal Board ("the Board") in an *inter partes* reexamination proceeding under 35 U.S.C. § 141(c) and 28 U.S.C. § 1295(a)(4)(A).

The Board below had jurisdiction of this proceeding pursuant to 35 U.S.C. § 134. On February 7, 2014, the Board entered a Decision on Appeal in Reexamination No. 95/001,723 concerning the '468 patent. (A0001-31; *see also* A0043-62.) The Board reversed the Examiner's rejections of original claims 9-12. (*Id.*) ACCO filed a Request for Rehearing under 37 C.F.R. § 41.79 on March 7, 2014. (A3210-26.) The Board denied the Request for Rehearing on July 18, 2014. (A0032-37.) ACCO filed a timely Notice of Appeal to this Court on August 29, 2014. (A3328-30.)

STATEMENT OF THE ISSUES

1. Whether, under *KSR v. Teleflex*, 550 U.S. 398 (2007), the Board committed legal error by reversing the reexamination Examiner's obviousness rejections of claims 9-12 of the '468 patent, without considering whether the "missing" claim function of "preventing the starting" of a motor in a paper shredder would nevertheless have been obvious to one of ordinary skill over the prior art as a whole.

2. Whether, under the proper test for obviousness under *KSR*, the claims would have been obvious as a matter of law in light of the express findings of the Board that one of skill in this predictable art: would have had reason to combine a presence sensor system, a thickness detector system, and a controller of the prior art; would have had only two ways to combine these prior art elements, one of which met the full scope of the claims; and would have had reason to choose the one way that met the claims.

3. Whether, under the proper test for obviousness under *KSR*, the clear teachings of the prior art, the knowledge of those of skill in the art, and common sense dictate that the claimed function of "preventing the starting" of a paper shredder motor would have been obvious as a matter of law over "stopping" and "disconnecting" a motor as taught in the prior art.

4. Whether, as a matter of law, there is any evidence of secondary considerations of non-obviousness in the record to overcome the strong case of prima facie obviousness, in light of the lack of a nexus between the claimed invention and any purported long felt need, adoption by others, or industry praise.

STATEMENT OF THE CASE

ACCO and Fellowes are competitors in the market for consumer and commercial paper shredders. Fellowes sued ACCO for infringement of U.S. Patent No. 7,963,468 in the Northern District of Illinois on June 21, 2011, the day the '468 patent issued. (A4502; A4506.) ACCO asserted defenses and counterclaims of non-infringement and invalidity. (A4544-46.) That action, also involving several other patents (some of which are associated with other Patent Office proceedings), is currently stayed pending the reexamination of the '468 patent and the other Patent Office proceedings. (*See* A4549.)

On August 23, 2011, ACCO requested *inter partes* reexamination of the '468 patent. (A1000-219.) For claims 9-12, ACCO relied on prior art not relied on during the original prosecution. (A1004-09.) The Examiner determined that ACCO's reexamination request raised substantial new questions of patentability, instituted reexamination, and rejected claims 9-12 as obvious on November 10, 2011. (A1332-45.) Over Fellowes's arguments for patentability, the Examiner maintained obviousness rejections in an Action Closing Prosecution dated April 13, 2012, and a Right of Appeal Notice dated July 19, 2012. (A2121-54; A2232-58.) Fellowes appealed to the Board. (A2259.)

After briefing and oral argument by the parties, the Board reversed the Examiner's obviousness rejections in a February 7, 2014 decision. (A0001-31.)

The Board denied ACCO's request for rehearing on July 18, 2014. (A0032-37.) ACCO appeals to this Court seeking reversal of the Board's decision and reinstatement of the Examiner's rejections of claims 9-12 as obvious. This matter should be returned to the Patent Office for entry of a reexamination certificate cancelling claims 9-12 of the '468 patent.

STATEMENT OF FACTS

The '468 patent relates to a predictable mechanical art, paper shredders. Specifically, the '468 patent claims a straightforward combination of paper shredder elements from the prior art: a paper presence sensor system, a paper thickness detector system, and a controller to process the signals from the presence sensor and thickness detector to prevent paper jams. Fellowes added the presence sensor system limitations during original prosecution as the sole basis to distinguish the claims-at-issue from the prior art. In the reexamination that led to this appeal, the Examiner repeatedly rejected the claims, including the claimed function of the presence sensor system, as obvious for multiple reasons. Yet the Board reversed the Examiner on narrow grounds and incomplete reasoning. Below, ACCO describes the relevant facts in detail.

I. The '468 Patent And Claims

U.S. Patent No. 7,963,468 is entitled "Shredder with Thickness Detector." (A0043.) The '468 patent describes that, before the invention, shredders were "well known" for destroying unwanted documents, compact discs, and credit cards.[1] (A0055, col. 1:25-27.) Shredders at that time often sat on top of a waste

[1] Although shredders can be used to shred material other than paper, for ease, this brief will refer to the material to be shredded as "paper."

container, such as shown below in Figure 1 from the '468 patent. (A0055, col. 1:31-33.)

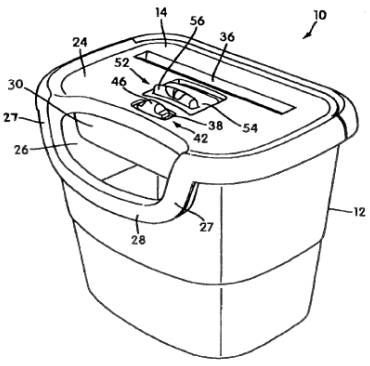


FIG. 1

(A0046, Fig. 1.) A user could feed paper into the opening on top of the shredder, called the throat 36 in this figure, and the shredded paper would then fall down into the container. (A0055, col. 1:33-35.)

A. Thickness Detection Systems To Prevent The Common Problem of Paper Jams In Shredders

The '468 patent explains that a "common" problem before the invention was that users would feed in more paper than the shredder could handle and the shredder would jam. (A0055, col. 1:39-42.) The '468 patent describes how to use different kinds of paper thickness sensors (also called thickness detectors) and a controller to help prevent paper jams. (A0059-60, col. 9:20-11:7.)[2]

[2] The '468 patent shows how to use displacement sensors, piezoelectric sensors, and optical sensors to sense paper thickness, for example. (A0059, col. 9:23-55, 9:56-10:17, 10:18-54.)

Whether before or after the '468 patent, thickness detector systems in shredders have the same basic function: to detect when there is too much paper for a shredder to handle at once and take action to prevent a jam. Thickness detection begins with a sensor that detects the thickness of the paper inserted in the throat. (A0059, col. 9:38-49, col. 10:47-51.) The sensor sends that information to a controller. (*Id.*) The controller then takes an action if the thickness is greater than a set threshold, generally a thickness just below the capacity of the shredder. (*Id.*) For example, the controller may be configured to send a signal to not allow power to the shredder motor or to alert the user with a visual indication, or both, upon the thickness detector sensing there is too much paper. (*Id.*)

B. The Conventional Presence Sensor Systems

The '468 patent also describes "presence" sensor systems, a well known feature of shredders before the invention. (*See, e.g.*, A0059-60, col. 10:37-11:7.) A presence sensor system has a sensor to detect whether there is paper present in the throat and a controller to automatically turn the shredder on and off based on this detection. (*See id*., 10:44-54.) If the presence sensor detects paper, the sensor signals to the controller that the motor can turn on; if not, the motor will be off. (*Id.*) This automatic on/off feature is a substitute for, and has advantages over, a user operated on/off switch that leaves the shredder on until the switch is turned off by the user and vice versa. (*Id. at* 10:63-11:7.) Presence sensor systems "allow

the shredder to remain idle until an item is inserted therein and contacts the sensor." (*Id.* at 10:66-11:1.) Such systems had long been used in this art prior to the '468 patent, rather than a user switch, for the convenience of the shredder users. (*See, e.g.*, A1097; A1134; A1141; A1162; A1167.)

C. The Combination Of Thickness Detector And Presence Sensor Systems In The Specification

The '468 patent discloses a shredder with both thickness detector and presence sensor systems. In Figure 11 below from the '468 patent, the thickness detector 140 and presence sensor 150 are each in the throat 36 of the shredder.

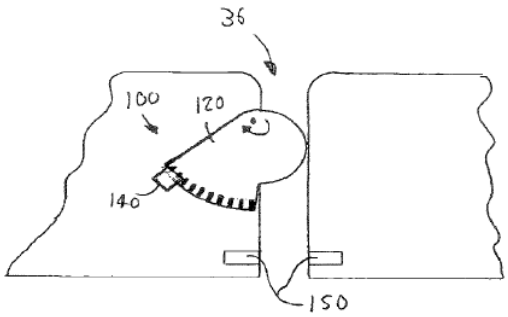


FIG 11

(A0053.) As paper is inserted down through the throat 36, the contact member 120 engages the paper and rotates a certain amount. (*See, e.g.*, A0059, col. 9:20-55.) The thickness detector 140 measures that amount and sends that information to a controller 200 (not pictured). (*Id.*) As the paper is inserted further, the presence sensor 150 detects that paper is present in the throat and sends that information to controller 200. (*Id.*) In this configuration, the thickness detector 140 is above or

"upstream" from the presence sensor 150, and the presence sensor 150 is below or "downstream" from the thickness detector 140.

For the shredder of Figure 11, the controller will signal the motor to turn on when the presence sensor detects paper in the throat so long as the thickness detector detects that the paper is within the set thickness threshold for the shredder. (A0059-60, col. 10:66-11:7.) To prevent possible paper jams, the motor will not start, or it will stop, if the thickness sensor detects that the paper is too thick, even when the presence sensor detects paper. (*Id.*)

"This use of [presence] sensors in the shredder throat is known," according to the '468 patent. (A0059, col. 10:66-67.) The '468 patent also teaches that many other "such sensor[s]" or "approaches" of the prior art may be used to achieve this function of Figure 11. (A0059, col. 10:40-41, 53-58, 63-66.)

D. The Language Of Representative Claim 9

The claims-at-issue are directed at the basic combination of the thickness detector and presence sensor systems as in Figure 11. Representative claim 9 is copied below in full[3]:

[3] ACCO added claim element lettering, underlining, and italics for ease of reference.

9. A shredding machine for shredding sheet material,

[a] the machine comprising a feed-aperture and an electric cutting mechanism, the feed-aperture being configured to receive multiple sheets and direct said sheets in a feeding direction towards the cutting mechanism for shredding,

[b] the machine being characterized by the provision of a thickness detector which is moveable between a first position in which the thickness detector permits energization of the cutting mechanism and a second position in which the thickness detector prevents energization of the cutting mechanism,

[c] wherein part of the thickness detector extends into the feed-aperture,

[d] the thickness detector being configured such that said part will be engaged by sheet material inserted in the feeding direction into the feed-aperture prior to reaching the cutting mechanism, and moved from said first position to said second position as a result of said engagement, if the sheet material exceeds a predetermined thickness;

[e] further provided with maximum thickness indicating means to provide a visual indication to a user of the machine that energization of the cutting mechanism is prevented due to the sheet material moving said part of the thickness detector to said second position;

[f] further comprising a presence sensor along the feed-aperture for detecting a presence of the sheet material inserted into the feed-aperture, and

[g] a controller coupled to the thickness detector, the presence sensor, the maximum thickness indicating means, and the electric cutting mechanism,

[h] wherein the controller is configured to start energization of the cutting mechanism only in response to the presence sensor detecting the presence of the sheet material inserted into the feed-aperture and the part of the thickness detector not having been moved to the second position by the sheet material;

[i] wherein the controller is configured to prevent the starting of energization of the cutting mechanism and also actuate the maximum thickness indicating means to provide the visual indication in response to the part of the thickness detector moving to the second position.

(A0061; emphasis added.) At a high level, elements [a]-[e] relate to the basic thickness sensor system of the invention, elements [f]-[g] relate to the presence sensor system, and elements [h]-[i] describe the resulting function of that combination.

Independent claim 11 of the '468 patent uses similar language as claim 9. The parties and the Board during reexamination considered claims 9 and 11 together. (*See* A0009:7-11.) Similarly, ACCO does so for the purposes of this appeal. Dependent claims 10 and 12 both add the identical limitation that the thickness sensor includes a moveable amplification element: "wherein said thickness detector includes a sensor and the part is coupled to a detectable element movable for detection by the sensor, and wherein said thickness detector is configured such that movement of said part in the feed-aperture amplifies movement of the detectable element at the sensor." (A0061; A0062.)

II. The Original Prosecution: Adding The Presence Sensor Limitations For Allowance

During the original prosecution of the '468 patent, after the Examiner rejected the claims, Fellowes added the claims-at-issue to attempt to differentiate the invention over the prior art Japanese Patent No. 57-70445 ("JP '445"). On December 21, 2010, Fellowes disclosed JP '445 to the Patent Office and presented

new claims.[4] (A3809-24.) Fellowes argued the new claims were patentable because the claims recited a "presence sensor" connected to the controller and "[t]hese limitations are not taught by JP '445." (A3823.) This was the sole basis that Fellowes used to distinguish these new claims from the prior art.

Yet Fellowes also conceded that JP '445 met many of the claim limitations. Fellowes recognized that "JP '445 teaches a shredder with a thickness detector in its throat," such as in claim elements [a]-[e]. (*See* A3821.) Fellowes also admitted that JP '445 teaches that thickness detection can be used to stop the shredder or provide a visual indication to a user, as in the '468 patent. (*See id.*) Fellowes equated the ability of the JP '445 shredder to stop the motor if the paper is too thick to an approach that "prevents operation of the motor," as required by the new claims. (A3822.)

Nonetheless, the Examiner allowed the new claims in the next Office Action on March 22, 2011. (A4260-61.) Fellowes accepted the allowed claims on March 31, 2011, and the claims issued on June 21, 2011. (A4268-77; A4439-40.)

III. The Reexamination Examiner's Obviousness Rejections

After Fellowes sued ACCO on the '468 patent, ACCO sought *inter partes* reexamination of the '468 patent in the Patent Office. (A1000-219.) For claims 9-12, ACCO's request for reexamination relied on prior art references which the

[4] The new claims included proposed claims 27-31 which issued as claims 9-12 at issue in this appeal. (A3813-15.)

original Examiner did not rely upon and which taught the presence sensor limitation. (A1004-09.) The Examiner instituted the reexamination and rejected the claims as obvious on November 10, 2011. (A1332-63.) Throughout the reexamination, the Examiner consistently found that the subject matter of the claims would have been obvious over the teachings of JP '445 and conventional presence sensor systems and rejected Fellowes's arguments to the contrary.

A. The JP '445 Primary Prior Art Reference

The Examiner used JP '445 as a primary prior art reference for multiple obviousness combinations. (A1350-60; *see also* A1038-49.) Like Fellowes during original prosecution, the Examiner recognized that JP '445 teaches the main structural elements of the '468 claims, that is, a shredder with a thickness detector, visual indication, and controller. (A1350-51; *see also* A1047-49.) Figure 1 of JP '445, reproduced below, shows feeding guide plate 1, thickness detection portion 2, determination apparatus 3, rotational shafts 4, and rotating blades 5 of a shredder.

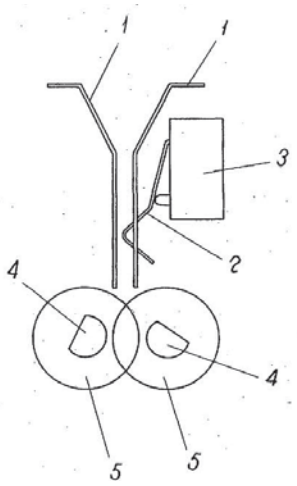


Figure from JP '445

(A1045; A1048.)

The Examiner found that in JP '445 if the thickness detector 2 determines that the amount of paper is too much during operation, the controller 3 takes action to prevent a jam. (A1350-52.) JP '445 teaches that the controller can send a signal to prevent or stop energization of the motor or alert the user with a "warning lamp" visual indication. (*See id.*) The Examiner also recognized that JP '445 does not disclose a presence sensor, nor does it describe other means to turn on the shredder. (*See id.*) However, the Examiner held that it would have been obvious to one of ordinary skill in the art to include a conventional presence sensor system in the shredder of JP '445 and that doing so would have resulted in a shredder as set forth in independent claims 9 and 11. (A1351-52.)

B. Conventional Presence Sensor Systems

The Examiner emphasized that using a presence sensor system was a long-standing "convention" in the art to turn a shredder on and off. The Examiner first

relied on a manual from one of ACCO's earlier shredder products, the GBC Shredmaster. (A1351; *see also* A1093-1126.) The Examiner found the GBC Shredmaster Manual "teaches the presence sensor automatically turning on the shredder" when paper is inserted. (A1352; *see also* A1097; A1100-02.) At the same time, the GBC Shredmaster Manual also teaches using "jam stopper" technology to sense a paper jam condition and take action. (A1351; *see also* A1101.) The Examiner appreciated that, like JP '445, the GBC Shredmaster Manual could alert the user to a jam by "controlling the cutting mechanism" or "providing a visual indication" when the paper is too thick. (A1351; *see also* A1100-01.) The Examiner concluded it would have been obvious "to include the presence sensor and controller as taught by GBC to control the presence sensor, thickness detector, cutting mechanism and warning lamp for their respective functions." (A1351-52.)

Besides the GBC Shredmaster Manual, the Examiner cited four other prior art patents to "exemplify the convention of using a presence sensor in shredders to automatically turn the cutting mechanism on when sheet material is being inserted into the feed aperture." (*See, e.g.,* A1352; A1354; A1356; A1357.) He cited U.S. Patent No. 6,550,701 to Chang ("Chang") filed October 10, 2000; U.S. Patent No. 5,775,605 to Tsai ("Tsai") filed May 29, 1997; U.S. Patent No. 4,842,205 to Araki ("Araki") filed January 13, 1988; U.S. Patent No. 3,724,766 to Bosland

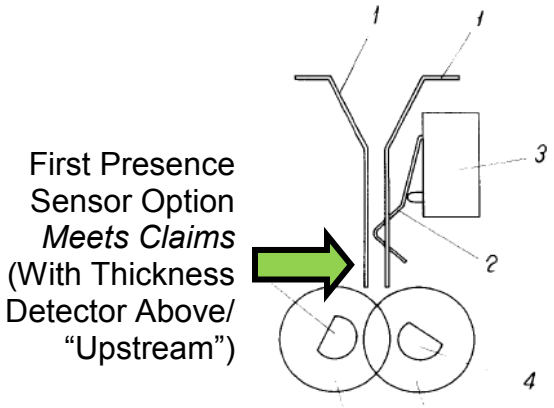
("Bosland") filed May 14, 1971. (*Id.*; *see also* A1128; A1137; A1145; A1164.) He also relied on JP H09-38513A to Yoshida to teach the moveable amplification element of dependent claims 10 and 12 in rejecting those claims. (A1359; *see also* A1051.)

These prior art patents further established that using presence sensor systems was well known in the art. As one example, Tsai specifically states it was "conventional" for a shredder to have sensors "for automatically activating the cutting device upon detection of the presence of a paper sheet" and to "automatically deactivat[e] the cutting device upon detecting the presence of a paper jam." (A1141, col. 1:24-29.) Tsai also states that the electrical connections between these components in shredders is "known in the art." (A1143, col. 5:1-5.) Similarly, Araki teaches those of skill that sensors could be used in various positions and configurations for different advantages in paper shredders. (A1158, col. 6:18-35; A1148, Figure 4.) The Examiner found the claims would have been obvious in view of this prior art and the knowledge of one of ordinary skill in this predictable art. (*See, e.g.*, A1351; A1352; A1354; A1356; A1357.) Fellowes could not persuade the Examiner otherwise.

C. The Obviousness Of Configuring A Controller To "Prevent The Starting" Of The Motor Based On Thickness Detection And A Presence Sensor, As Claimed

Throughout reexamination, Fellowes emphasized that the novelty of the invention is the basic combination of the presence sensor and thickness detector systems. Fellowes said this combination was "lacking in the prior art and achieves significant advantages never achieved before in a shredder." (*See, e.g.*, A1367; *see also* A1370.) More specifically, Fellowes argued that the prior art cannot meet the last limitation of claim 9 that "the controller is configured to *prevent the starting* of energization of the cutting mechanism" if too much paper is inserted into the shredder, as recited in element [i]. (*See, e.g.*, A1373; emphasis added.)

Yet the Examiner maintained his strong obviousness rejections and directly countered Fellowes's arguments. (A2121; A2232.) The Examiner explained that the evidence shows that one of skill in the art would have had *only two options* for physically modifying JP '445 to have a presence sensor with its thickness detector. (A2240-42; A2243-44.) He said one of those two options is arranging the thickness detector above or "upstream" of the presence sensor, with the presence sensor at the location of the arrow shown below in the Figure of JP '445.

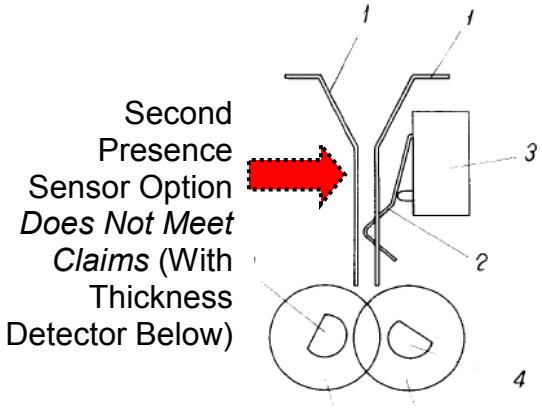


Annotated Figure from JP '445

The Examiner recognized that one of skill would have understood that this combination of the JP '445 thickness detector "upstream" of a conventional presence sensor system, with both systems functioning in the same way as in the prior art, would have resulted in a structure that meets the claims. In this arrangement, when a user inserts paper, the thickness detector first checks the thickness because the paper physically passes through the thickness detector first. (A2241; A2244.) If the sheets are too thick, the thickness detector system "prevent[s] energization" of the motor, so that the presence sensor cannot start the motor, as in claim element [i]. (A2242.) However, if the inserted sheets are *not* too thick, the presence sensor can signal the controller to "start energization," as in element [h]. (A2241-42.) The motor will only start if both the thickness detector detects that the paper is not too thick *and* the presence sensor detects paper. (*Id.*) If the motor is off when a user inserts too much paper, the motor will not start. (*Id.*)

Put another way, in this simple combination of JP '445 and a conventional presence sensor system, just as in the claims, the controller manages the shredder based on two signals, one from the thickness detector and one from the presence sensor. (*See id.*) The shredder is ON and able to shred only if the controller receives a signal that paper is present and has not received a signal that the paper is too thick. (*Id.*) The shredder is OFF if the controller receives a signal either that there is too much paper or paper is not present. (*Id.*) The Examiner emphasized that it would have been trivial for one of skill to configure the controller to process the signals from the thickness detector and presence sensor systems in this way. (*See* A2250-51.)

The Examiner also described the other option available for the physical placement of the presence sensor, that is, with the thickness detector below the presence sensor (again with the presence sensor at the location of the arrow below the Figure of JP '445 and functioning in the same way as in the prior art).



Annotated Figure from JP '445

With this other configuration, the Examiner explained, one of skill would have appreciated that the motor could start and stop in an undesirable way. (*See* A2240-41.) If a large stack of paper was inserted, for example, placing the presence sensor "before the thickness detector would turn on the cutting mechanism just to have the cutting mechanism . . . turn off a split second la[t]er when the thickness detector detects too much paper being . . . inserted." (*Id.*) This configuration would be a "waste of energy," cause "wear and tear on the cutting mechanism," and "confuse and alarm the user." (*Id.*) Conversely, the first configuration avoids these same problems. (*See id.*)

Based on that analysis, the Examiner maintained his finding that it would have been obvious to combine JP '445 and the GBC Shredmaster Manual as claimed because there was reason to "provide an automated way of turning on and off the shredder and modify the controller so that it can handle the respective functions of the presence sensor, thickness detector, cutting mechanism and warning lamp." (A2241-42.) He made similar findings for the other prior art and added that the subject matter of the claims would have been obvious "because it is no more than the predictable use of prior art elements according to their established functions resulting in the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for improvement." (A2242-48 (citing *KSR v. Teleflex*, 550 U.S. 398, 401 (2007)); *see*

also A2249-51.) He rejected claims 9 and 11 on this reasoning and claims 10 and 12 as obvious further in view of Yoshida '513. (A2249.) Fellowes appealed to the Board. (A2259.)

At oral argument before the Board on December 18, 2013, counsel for Fellowes emphasized that "thickness detectors have been around for a very long time" on a shredder, that "presence sensors have been on shredders for a very long time," and that "shredders with controllers were well known." (A3341.) He characterized the invention as "not terribly complex" and called the relevant art "understandably simplistic technology." (A3334; A3340.)

IV. The Board's Reversal Of The Examiner's Obviousness Rejections

Nonetheless, the Board reversed the Examiner's multiple obviousness rejections. (A0001-31; A0032-37.) At the outset, the Board stated "a single issue is dispositive of the appeal":

> Has the Examiner or the Requestor persuasively shown that it would have been obvious to one of ordinary skill in the art to combine in a shredding machine a presence sensor, a thickness detector and a controller configured to satisfy the limitations of claim 9 italicized above [i.e., elements[h] and [i]]?

(A0009.) With that, the Board analyzed the patentability of claims 9 and 11 together, due to the similarity of the claims. (*Id.*)

Like Fellowes, the Board emphasized that the invention relates to the combination of the presence sensor and thickness detector systems. (A0025.) The

Board also found that there was a known reason in the prior art to combine these claim elements: "to provide an automated way of turning on and off the shredder." (A0026 n.7.) The Board recognized this reason to combine as a known "design incentive." (*Id.*)

The Board also found that each of GBC Shredmaster Manual, Chang, Tsai, Araki, and Bosland taught the conventional presence sensor system of the art. (A0014-22.) And, further, the Board agreed with the Examiner that one of skill would have had reason to modify JP '445 by placing a thickness detector upstream of a presence sensor in its shredder. (A0028.) Although the Examiner correctly stated this arrangement would result in a shredder that performs the claimed function, the Board ignored this evidence and held "this reasoning does not explain why one of ordinary skill might have configured a controller to perform the function recited in [elements [h] and [i] of] claim 9." (*See id.*)

The Board stated that none of the references "teach a shredding machine including a controller prevented from *starting* to supply energy to a motor" based on thickness detection as in the last claim limitation, yet failed to analyze whether this function would have been obvious. (A0011; original emphasis.) To distinguish JP '445 from the claims, for example, the Board reasoned that JP '445 teaches "*stopping* the running motor if an excessive thickness of paper is detected," but it does not teach how to "prevent a power supply from *starting*," as claimed.

(A0013; emphasis added; *see also* A0025.) The Board also reasoned "the failure of *all* of the cited references to disclose or describe a claim limitation is a deficiency in the teachings of the prior art as a whole. . . ." and stopped its analysis there. (A0025 n.6, original emphasis.) Nowhere did the Board analyze whether the claimed function of elements [h] and [i] would have been obvious to one of skill in light of the prior art or common sense. The Board concluded by stating "we make no findings as to any assertions of fact relating to secondary considerations." (*Id.*)

In its Decision on the Request for Rehearing, the Board reiterated its conclusion. (A0033-37.) The Board again recognized that the functions of the thickness detector and the presence sensor were "known." (A0034.) Yet the Board stated "we find as fact that neither the Examiner nor the Requestor has proven by preponderance of the evidence that placing the thickness detector upstream of the presence sensor, regardless of how close, necessarily would have resulted in preventing the start of energization of a cutting mechanism." (*Id.*) The Board also said that JP'445[5] did not teach "preventing the start of energization" of the motor. (A0035.) The Board held "[t]eaching the use of a thickness detector to

[5] The Board in its Decision on the Request for Rehearing refers to JP '513 to Yoshida. (A0035.) Given the context, ACCO assumes that the Board made a typographical error here and meant to refer to the primary reference in this reexamination, JP '445.

stop an energized motor is not the same as teaching that the energization of the cutting mechanism should be prevented." (*Id.*) Again, nowhere did the Board address whether this alleged distinction between the claimed function and the prior art would have been obvious under the law.[6]

ACCO appeals to this Court because the Board erred as a matter of law by reversing the Examiner's obviousness rejections.

[6] Since the Board's decision, the Examiner who rejected the '468 patent claims in reexamination had a chance to reaffirm the logic of his analysis in the co-pending reexamination of closely related U.S. Patent No. RE 44,161. Despite the Board's reversal for the '468 patent, the Examiner maintained all obviousness rejections of the related claims in the ongoing '161 reexamination. (A4467-76.)

SUMMARY OF THE ARGUMENT

The Board committed legal error in this case by reversing the well-reasoned rejections of the reexamination Examiner based on an improper application of the test for obviousness under *KSR Int'l v. Teleflex, Inc.*, 550 U.S. 398 (2007) and this Court's cases following *KSR*. Indeed, this case is a rerun of *Randall Mfg. v. Rea*, 733 F.3d 1355 (Fed. Cir. 2013). In both cases, the Examiner correctly found that the purported invention was nothing more than the obvious combination of familiar elements according to known methods, yielding predictable results. In both cases, the Board improperly reversed the Examiner's determination by using a rigid approach that this Court in *Randall* characterized as a "blinkered focus on individual documents." In both cases, the Board applied the incorrect standard and got it wrong. Here, as in *Randall*, using the proper standard, with recourse to the knowledge, creativity, and common sense of one of ordinary skill, yields the correct result: a conclusion of obviousness.

As the reexamination Examiner here appreciated, Fellowes's claims describe a straightforward combination of predictable prior art paper shredder elements: a presence sensor system, a thickness detector system, and a controller. Even the Board's findings reflect that the claimed presence sensor functions as it did in the prior art and simply sends a signal to automatically turn on/off a shredder based on whether paper is inserted ("present"); the claimed thickness detector functions as it

did in the prior art and sends a signal to not allow the shredder to operate if there is too much paper; and the claimed controller functions as it did in the prior art and processes the signals to prevent jams.

All that Fellowes claimed here is a shredder with the combination of a thickness detector and a presence sensor and a controller on the same machine, operating in the same way as in the prior art. One of skill would have had reason to make this combination to automatically turn the shredder on and off and prevent paper jams based on the clear teachings of the art. Once the decision was made to combine these elements, one of skill would be presented with a finite choice of only two options—either have the thickness detector do its detection before or after the presence detector does its detection. Making that basic choice was well within the bounds of one of ordinary skill in this predictable art, as the Examiner correctly found.

In the end, the Board recognized that the only possible difference between the claims and the prior art is the slim distinction between the claimed "*preventing starting*" of the motor when there is too much paper and "*stopping*" and "*disconnecting*" the motor when there is too much paper as taught in JP '445. But the Board never determined whether this narrow difference would have been obvious to one of skill. One of skill in the art would have found it obvious to "prevent starting" based on the teachings of "stopping" and "disconnecting" in the

prior art, the skill in the art, and simple common sense. This narrow "invention" is not patent worthy.

The Board declined to address the merits of the secondary considerations evidence set forth by Fellowes in reexamination. This evidence can be properly considered—and discarded—as a matter of law on appeal here. On the merits, there is no relevant evidence of secondary considerations of non-obviousness, and the proposed evidence, even if true, cannot overcome the strong prima facie obviousness case.

As in *Randall*, ACCO respectfully requests this Court reverse the decision of the Board, reinstate the well-founded rejections of the Examiner in their entirety, and return this matter to the Patent Office for entry of a reexamination certificate cancelling claims 9-12 of the '468 patent.

ARGUMENT

I. Standard Of Review

This Court reviews the Board's legal conclusions de novo. *Q.I. Press Controls, B.V., v. Lee*, 752 F.3d 1371, 1378-79 (Fed. Cir. 2014); *see also Randall*, 733 F.3d at 1362 ("On appeal, we review the Board's compliance with governing legal standards de novo."). This Court reviews the Board's underlying factual findings to determine if the findings are supported by substantial evidence. *Id.* A finding is supported by "substantial evidence" if a "reasonable mind might accept the evidence to support the finding." *Q.I. Press*, 752 at 1378-79. In Patent Office reexamination proceedings, the burden of proof for invalidity is a preponderance of the evidence, and there is no presumption of patent validity. *Id.*

The subject matter of a claim is obvious and, therefore, unpatentable, if the differences between the claimed invention and the prior art are such that the invention as a whole would have been obvious to one of ordinary skill in the art at the time of invention. 35 U.S.C. § 103. The ultimate conclusion of obviousness is one of law; it is based on factual determinations regarding the scope and content of the prior art, the differences between the prior art and the claims, the level of ordinary skill in the art, and any evidence of secondary considerations of obviousness or non-obviousness. *KSR*, 550 U.S. at 427 ("The ultimate judgment of obviousness is a legal determination."); *Graham v. John Deere Co. of Kan. City*,

383 U.S. 1, 17-18 (1966) ("[T]he ultimate question of patent validity is one of law."); *see also* 35 U.S.C. § 103.

II. The Board Erred As A Matter Of Law In Reversing The Examiner's Obviousness Rejections For Claims 9-12.

A. The Board Improperly Applied The Test for Obviousness By Failing To Consider Whether The "Missing" Claim Function Would Nevertheless Have Been Obvious To One Of Ordinary Skill Over The Prior Art As A Whole.

As this Court has explained in cases applying *KSR*, such as *Randall* and numerous others, the proper test for obviousness requires an "expansive and flexible" approach that "reads the prior art in context, taking account of 'demands known to the design community,' 'the background knowledge possessed by a person having ordinary skill in the art,' and 'the inferences and creative steps that a person of ordinary skill in the art would employ.'" *Randall*, 733 F.3d at 1362 (quoting *KSR*, 550 U.S. at 418). Critically, a "blinkered focus on individual documents" of the prior art, rather than the prior art as a whole and the knowledge of one of ordinary skill, is legal error. *Id.* The law "not only permits, but *requires*, consideration of common knowledge and common sense." *Id.* at 1363 (original emphasis); *see also id*. ("[T]he knowledge of such an artisan is part of the store of public knowledge that must be consulted.").

The Board erred here by not following this governing law; instead taking another, incomplete approach to obviousness. The Board improperly focused on

what was *not* explicitly recited in the prior art references, without considering whether what it deemed was missing would have been obvious to one of skill based on the art as a whole. When the Board did not find in the prior art references the precise terminology used in the '468 patent claims, it wrongly ended its analysis and concluded that the subject matter of the claims was non-obvious. Most notably, once the Board determined JP '445 taught "stopping" the motor, rather than "preventing starting" as claimed, the Board determined the claims would have been non-obvious. (A0025:3-9.) The Board emphasized that the claimed shredder "performs a function not disclosed or suggested in the prior art [namely, JP '445]" and "[n]one of the references describes this limitation." (A0025; A0026; A0011.) The Board relied on the legal premise that "the failure of *all* of the cited references to disclose or describe a claim limitation is a deficiency in the teachings of the prior art as a whole. . . .," without ever finishing the obviousness analysis. (A0025 n.6, original emphasis.)

The Board erred because it never considered, as the test for obviousness requires, whether the "missing" claim function of "preventing starting" would nevertheless have been obvious to one of ordinary skill. *See Randall*, 733 F.3d at 1362. The Board failed to go beyond the words in the individual pieces of prior art. *See id.* With JP '445 for instance, the Board recognized its teaching of "stopping" and "disconnecting" the motor to prevent jams, yet never analyzed the

obviousness to one of skill of "preventing starting" over these basic teachings. (A1049.)

At no point did the Board examine how one of ordinary skill would have viewed the teachings of the prior art as a whole, *see id.*, including the simple combination of the shredder of JP '445 with its thickness detection system and the conventional, even pervasive, presence sensor systems of the prior art. The Board's opinion mentions neither the knowledge of one of ordinary skill in the art nor the level of skill in the art itself. *See id.* Nor did the Board mention common sense or the creativity of one of ordinary skill in the predictable art of paper shredders. *See id.* And, ignoring that there are "a finite number of identified, predictable solutions" here, *see KSR*, 550 U.S. at 421, the Board certainly did not mention Fellowes's concessions that the claimed elements were all "well known," and this invention involved "understandably simplistic technology." (*See, e.g.*, A3341; A3334; A3340.)

The Board's failure to properly analyze obviousness is legal error. The faulty "blinkered focus" that characterizes the Board's ruling here is exactly what this Court criticized in *Randall*. 733 F.3d at 1362. As in *Randall*, this Court should reverse the conclusion of non-obviousness by the Board and reinstate the correct and well-reasoned obviousness rejections from the Examiner that are based on the proper obviousness analysis. Here, the Board's "failure to consider the

knowledge of one of skill in the art appropriately—was plainly prejudicial." *Id.* at 1363.

The Board compounded this legal error with another. The Board held that ACCO needed to show that the combination of the prior art "*necessarily*" would have resulted in the claimed function recited in elements [h] and [i]. (*See* A0034, emphasis added.) But, this case is about obviousness, not anticipation. *See Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983) ("Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim."). Showing that a combination of the prior art necessarily resulted in a device that included every limitation is certainly evidence of obviousness. However, ACCO is not required to make that showing here, contrary to the Board's assertion. Rather, ACCO need only show, by a preponderance of the evidence, that the claimed invention would have been obvious. *Id.* ("A prior art disclosure that 'almost' meets that standard may render the claim invalid under § 103 . . . the need to determine obviousness presumes anticipation is lacking."); *see also In re Merck*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) ("Non-obviousness cannot be established by attacking references

individually where the rejections are based upon the teachings of a combination of references.").[7]

B. Under The Proper Analysis, The Claims Would Have Been Obvious To One Of Skill In View Of JP '445 And The Cited Presence Sensor System Prior Art As A Matter Of Law.

Under the proper obviousness analysis—considering all the teachings of the prior art as a whole, the knowledge of one of ordinary skill, as well as common sense—the straightforward claimed combination in a shredder of a presence sensor system and a thickness detector system, with a controller configured as taught in the prior art, would have been obvious as a matter of law. In particular, JP '445 in combination with the cited prior art that taught the use of presence sensor systems renders the claims obvious, as the Examiner correctly found. (*See* A0009.)

1. The Board Recognized That One of Skill Would Have Had Only Two Ways To Combine The Thickness Detection And Presence Sensor Systems Of The Prior Art.

The Board's factual findings compel a conclusion of obviousness. Indeed, as described in detail below, it is undisputed that one of skill would have had only *two* ways to combine the thickness detector system and presence sensor system of

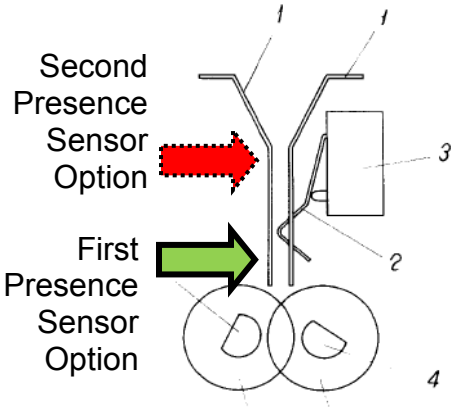
---

[7] The Board also incorrectly framed the "single issue" on appeal as whether ACCO had "*persuasively shown*" obviousness. (A0009, emphasis added; *see also* A0025.) Yet there is no "persuasively shown" legal standard in a reexamination. *See Q.I. Press*, 752 F.3d at 1379. The Board initially mentioned the correct preponderance standard (A0024), but the "persuasively shown" standard that the Board emphasized is simply incorrect.

the prior art. Simply put, the thickness detector would have operated either before or after the presence sensor operated. If before, then the thickness detector would prevent the shredder from turning on if there was too much paper, *in the same way as in the claim*. Because there are only two ways to combine the prior art elements—and one way meets the claim—these claims are the quintessential example of "a finite number of identified, predictable solutions" that is obvious under *KSR*. 550 U.S. at 421; *see also* M.P.E.P. § 2143(I)(E) ("Obvious to try").

Indeed, the Board correctly found that one of ordinary skill in the art would have had a "reason to add a conventional presence sensor" to the thickness detector equipped shredder of JP '445. (A0026 n.7.) This makes sense, because JP '445 does not describe how its shredder would be turned on or off. The Board found that the "automated way of turning on and off the shredder" (i.e., presence sensor system) was known as the preferred option in the art, as opposed to a manual on/off user-operated switch also known in the art. (*See* A0015-22; *see also* A0026 n.7.) Naturally, one of skill would have had reason to add the preferred automatic presence sensor system to JP '445. (*Id.*) This evidence alone provides a strong reason to combine the prior art elements as claimed. *See KSR,* 550 U.S. at 418 ("[C]ommon sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions.").

Moreover, in this predictable art (A3334; A3340) the Board also found that there were only *two options* available to one of skill to make this obvious combination of the presence sensor system and thickness detector system. (*See, e.g.*, A0027-28; *see also* A2240-42; A2243-44.) One option would be with the thickness detector above or "upstream" of the presence sensor in JP '445 (presence sensor illustrated by the green arrow shown below in the Figure of JP '445), and the other option would be with the thickness detector below the presence sensor in JP '445 (presence sensor illustrated by the red dotted arrow).



Annotated Figure from JP '445

The first option, with the thickness detector system of JP '445 "upstream" of and operating before the presence sensor system, with the controller configured for those systems as in the prior art, meets the full scope of the claims. Here, when paper is inserted, the thickness detector first checks the thickness before the presence sensor does anything. (A2241; A2244.) If the paper is too thick, the thickness detector signals the controller to "disconnect[] the motor" (A1049) so

that the shredding will not take place, as claimed in element [i]. (A2241; A2244.) Even if the presence sensor later detects paper, the motor will not start. (*Id.*) However, if the sheets are not too thick, the thickness detector does not disconnect the motor and the controller can "start energization" as in claim element [h] once the presence detector system is activated by the presence of paper. (*Id.*) In sum, the motor will only start if the paper is not too thick *and* paper is present, exactly the result that is claimed in the '468 patent.

With this arrangement being one of only two possible arrangements of the prior art claim elements, there is powerful reason to combine the elements of the prior art in this way. *See In re Index Sys., Inc.*, 576 Fed. App'x. 976, 980 (Fed. Cir. 2014) (holding claims obvious because "only two solutions would have been realistically considered to the problem"). Such a variation in "up" or "down" physical location has been expressly found obvious by this Court: "[b]ottom versus top is exactly the type of 'finite number of identified, predictable solutions' that justifies a legal conclusion that the result, when expected, is 'the product not of innovation but of ordinary skill and common sense.'" *Geo M. Martin Co. v. Alliance Mach. Sys. Int'l LLC*, 618 F.3d 1294, 1302 (Fed. Cir. 2010) (quoting *KSR*, 550 U.S. at 421). The results of this common sense arrangement would have been wholly predictable to the person of ordinary skill, with each of the elements functioning in the very same way as it did in the prior art. *See id.*

Moreover, the Board also appreciated that, although one of skill could have implemented either of the two options, one of skill would have had a reason to choose the first option over the second option. (A0028; *see also* A2240-41.) The Board stated "the Examiner provides reasoning to explain why one of ordinary skill in the art might have placed a *thickness detector* upstream of a *presence sensor* in the feed aperture of a shredding machine." (A0028, original emphasis.) The evidence shows that the other, second option would function in an undesirable way with the motor starting and stopping, wasting energy and causing wear and tear on the cutting mechanism. (A0028; *see also* A2240-41.) Although not required to show obviousness here, these facts provide still further evidence of the reasons to combine the prior art as claimed because the first option avoids these same problems that would have been evident to the person of skill. *See KSR,* 550 U.S. at 420 ("[A]ny need or problem . . . can provide a reason for combining the elements in the manner claimed.").

These findings of the Board compel a conclusion of obviousness. The Board's contrary conclusion is incorrect as a matter of law.

2. The Teachings Of JP '445 And Common Sense Dictate That The "Preventing Starting" Claim Function Would Have Been Obvious Over "Stopping" And "Disconnecting" As Taught In The Prior Art.

This conclusion of obviousness based on the Board's findings is reinforced by the broad teachings of JP '445 and common sense, which the Board failed to

properly consider. *See Wyers v. Master Lock Co.*, 616 F.3d 1231, 1240 (Fed. Cir. 2010) (stating "in appropriate cases, the ultimate inference as to the existence of a motivation to combine references may boil down to a question of 'common sense'").

The purpose of JP '445 is to "prevent shredder jamming before it occurs," and this teaching is not limited, as the Board's decision might suggest, to only stopping the motor after it is started. (A0012-13.) It applies to any potential jam situation. JP '445 taught one of skill the basic premise that *whenever* there is too much paper the motor should not run. (*See* A0012*; see also* A1049.) To accomplish this goal, when the thickness detector in JP '445 detects too much paper it can send a signal "disconnecting the motor" or "automatically stopping" the motor. (A1049.) The reason to stop the motor if it is running is the same reason to "prevent starting" if it is not yet running, that is, to prevent jams. Therefore, the distinction of the Board between "stopping" in the prior art and "preventing starting" in the claims (*see* A0025; A0026-27) reads JP '445 far too narrowly, ignores its explicit disclosure regarding "disconnecting the motor" whether it is running or not, and takes no account of the knowledge and common sense of one of skill in the shredder arts. *See PlaSmart, Inc. v. Kappos*, 482 Fed. App'x. 568, 573-74 (Fed. Cir. 2012) (holding that "minor distinction" such as exact physical location of element "reads the teaching of [the prior art] too

narrowly"); *see also In re Heck*, 699 F.2d 1331, 1333 (Fed. Cir. 1983) (holding patents are "part of the literature of the art, relevant for all they contain").

Further, one of ordinary skill would have understood that a user could have operated the shredder of JP '445 to "prevent the starting" of the motor as described in the last functional limitation even if it was equipped with a manual on/off switch. As the evidence before the Examiner showed, one of skill would have appreciated that the JP '445 shredder could be operated by the user first inserting sheets into the shredder and operating the manual on/off switch. (A2045-47.) Simply put, if the user inserted too much paper and then flipped the "on" switch, the JP '445 thickness detector would have determined that the paper was too thick and "disconnected the motor," which would "prevent the starting" of the motor, as claimed. (*Id.*) This evidence that one of skill could have operated the prior art shredder as in the last "missing" claim limitation further shows obviousness. *See Hewlett-Packard Co. v. Mustek Sys., Inc.*, 340 F.3d 1314, 1326 (Fed. Cir. 2003) ("[A] prior art product that sometimes, but not always, embodies a claimed method nonetheless teaches that aspect of the invention.").

As a matter of common sense, one of skill would certainly have had reason to "prevent the starting" of the motor when there is too much paper in light of the prior art teachings of "stopping" and "disconnecting" the motor. (*See* A1049.) Indeed, Fellowes's counsel conceded at the oral argument before the Board that

"thickness detectors have been around for a very long time," "presence sensors have been on shredders for a very long time," and "shredders with controllers were well known." (A3341.) As in *KSR*, the idea that one of skill would discard JP '445 as a way to prevent papers jams because it teaches only "stopping," as opposed to "not starting," makes "little sense." *See KSR,* 550 U.S. at 420-21 ("A person of ordinary skill is also a person of ordinary creativity, not an automaton.").

3. Contrary To The Board's Suggestion, Nothing More Is Needed To Render Obvious The Claimed Function Of "Preventing Starting" Beyond The Clear Teachings Of The Prior Art.

After one of skill had reason to place a thickness detector system upstream of a presence sensor system in a shredder, as the Board found (A0028:13-15), nothing more is needed to have a shredder that can perform the claimed functions including "preventing starting." The controller of the thickness detector and presence sensor systems need not be programmed to perform any "additional function," as the Board suggests. (A0028:9-13.) The controller only needs to be able to process the signals from the thickness detector and presence sensor in the same way as taught in the prior art. The basic control scheme, as claimed by Fellowes and taught in the prior art, is illustrated in the chart below:

	Paper Present	**Paper *Not* Present**
***Not* Too Thick**	ON	OFF
Too Thick	OFF	OFF

The Board ignored that the prior art taught one of skill this very control scheme. The thickness detector of JP '445, like the claims, does not allow the motor to operate whenever there is too much paper. (A1049; *see also* A0012.) Further, the prior art teaches that the presence sensor control function can be dependent on signals from other sensors, such as jam detection sensors. (*See, e.g.*, A1097; A1159, col. 8:5-7.) In fact, the GBC Shredmaster Manual teaches that the controller receives multiple signals but states "[w]henever the capacity of the shredder is exceeded the unit will stop shredding." (A1097; *see also* A1102.) Together, these prior art teachings clearly show the basic control scheme of the claims; that is, the motor should run if the paper is not too thick and paper is present, and the motor should not run if the paper is too thick or paper is not present.

As the Examiner appreciated, configuring a controller to process signals from both the thickness detector and presence sensor in this way would have been trivial to one of skill in this art. (*See, e.g.*, A2241-42; A2250-51.) The '468 patent itself reflects the common knowledge in the art that various approaches to configuring sensors and controllers were well known. (A0059, col. 10:40-41;

10:53-58; 10:66-67.) Prior art such as Tsai and Arkai further illustrate that the electrical connections between these components in shredders was also "known in the art." (A1143, col. 5:1-5; *see also* A1158, col. 6:18-35; A1148, Figure 4.) Counsel for Fellowes even conceded at oral argument before the Board that "[w]e don't dispute that shredders with controllers were well known." (A3341.) Such a configuration is "nothing more than the 'combination of familiar elements according to known methods,' 'each performing the same function it had been known to perform,' 'yield[ing] predictable results.'" *See Randall*, 733 F.3d at 1363 (quoting *KSR*, 550 U.S. at 416-17).

4. As In *Randall*, The Obvious Combination Of The Prior Art Elements Leads To The Claimed Invention.

The legal issues in this appeal mirror those in *Randall*. The invention in *Randall* concerned moveable panels for partitioning truck cargo space. *Randall*, 733 F.3d at 1356-57. The dispute centered on whether it would have been obvious to modify the basic panel structure of the prior art to include another claimed feature, the ability to stow panels in the ceiling of the truck cargo space. *Id.* at 1360-61. While the Board found there was no reason to configure the prior art to meet the claimed combination of features, this Court emphasized that a "prevalent, perhaps even predominant" method of stowing a panel in this art was to raise it to the ceiling. *Id.* at 1361, 1363. In reversing the Board's conclusion of non-obviousness in reexamination, this Court said "[i]t is hard to see why one of skill in

the art would not have thought to modify [the basic structure of the prior art] to include this feature." *Id.* at 1363.

The Court should do the same here. Like in *Randall*, the dispute here centers on whether it would have been obvious to modify the basic structure of the prior art to include another well known claim feature. In this case, the basic structure of the prior art is a shredder with a thickness detector system designed to prevent jamming as in JP '445, and the well known feature is the pervasive presence sensor and controller system of the prior art, such as in the GBC Shredmaster Manual and others.

Like in *Randall*, it would have been "well within the capabilities of an ordinary [] designer" to add the presence sensor system that "was very well known in the industry" to JP '445. *See id.* The claimed presence sensor system functions in exactly the same way as in the prior art, that is, to automatically and conveniently turn on and off the machine. The claimed thickness detector also functions in exactly the same way as the prior art: to determine if there is too much paper and send a signal to prevent a paper jam by not allowing the motor to run.

It is "hard to see why" one of skill would not have modified the basic thickness detector of JP '445 to include the well known presence sensor and controller feature of the claims. *See id.* at 1363. The claimed subject matter here would have been obvious as a matter of law. *See also Sakraida v. Ag Pro, Inc.*,

425 U.S. 273, 281 (1976) ("A patent for a combination which only unites old elements with no change in their respective functions . . . obviously withdraws what already is known into the field of its monopoly and diminishes the resources available to skillful men.").

C. Claims 10-12 Would Have Been Obvious For The Same Reasons As Representative Claim 9 And Further In View Of Yoshida '513.

The Board acknowledged that the obviousness arguments with respect to representative claim 9 apply equally to independent claim 11. (A0009.) Indeed, as the Board stated, the only notable difference between claim 9 and claim 11 is that claim 11 recites an "indicator," rather than "indicating means" as in claim 9. (A0009.) And, Fellowes never argued that claim 11 was non-obvious if claim 9 was obvious. (*Id.*) Thus, claim 11 would have been obvious for the same reasons discussed above in connection with claim 9.

Further, the only reason provided by the Board to allow dependent claims 10 and 12 was that the Examiner's rejections relied on the "same findings and reasoning used to reject parent claims 9 and 11." (A0029.) The Board did not question the Examiner's findings that, if claims 9 and 11 were obvious so were claims 10 and 12 because Yoshida '513 meets the additional moveable amplification element limitation of dependent claims 10 and 12. (*Id.*) There is no evidence distinguishing Yoshida '513's disclosure of this element from the claims. (*See, e.g.,* A2945-57; A2249; A1211-15.) Thus, because the Board erred in

reversing on the independent claims as described above, the Examiner's grounds of rejection for these dependent claims should also be reinstated.

III. As a Matter of Law, There Is No Relevant Evidence of Secondary Considerations That Could Overcome The Strong Case of Obviousness.

Although the Board declined to address the merits of the secondary considerations evidence in the record (A0029), this evidence can be properly considered—and discarded—on appeal as a matter of law. As described below, there is simply no relevant evidence of secondary considerations. Moreover, even if the proposed evidence of secondary considerations was relevant and true, it is "insufficient to overcome the strong prima facie obviousness case." *See In re Inland Steel Co.*, 265 F.3d 1354, 1366 (Fed. Cir. 2001); *see also Geo M. Martin*, 618 F.3d at 1304-05 (holding the "evidence of non-obviousness, even if fully credited by a jury, would fail to make a difference in this case").

A. The Prior Art Met The "Long Felt Need" That Fellowes Touts For "Improvements That Help Prevent Shredder Jamming."

Fellowes's supposed evidence of a "long felt need" for "improvements that help prevent shredder jamming" can be rejected out of hand. (*See* A2912.) Fellowes did not, and cannot, show this supposed "long felt need" was "unmet," as required under the law. *See, e.g.*, *KSR*, 550 U.S. at 418 (mentioning secondary consideration of long felt but "unsolved" needs) (citing *Graham*, 383 U.S. at 15-17); *Geo M. Martin*, 618 F.3d at 1304-05 ("Evidence of a long-felt but *unsolved*

need provides another secondary consideration of non-obviousness.") (emphasis added); M.P.E.P. § 716.04 ("[T]he long-felt need must not have been satisfied by another before the invention by applicant.").

The prior art disclosed "improvements to help prevent shredder jamming" and so met Fellowes's purported "long felt need." The Board found that JP '445 is directed to this need, specifically stating that "JP '445 is directed to finding a way to prevent shredder jamming before it occurs." (A0012; *see also* A2255.) Because the prior art already taught the "need" identified by Fellowes, and a solution to that need, the proposed evidence of "long felt need" must be discarded. *See Newell Cos. v. Kenney Mfg. Co.,* 864 F.2d 757, 768 (Fed. Cir. 1988) ("[O]nce another supplied the key element, there was no long-felt need."); *see also* M.P.E.P. § 716.04; *Geo M. Martin*, 618 F.3d at 1304-05 (rejecting evidence of long felt need where "'need' had been met by prior art machines").

Fellowes's evidence must also be rejected because the difference between the claims and the prior art is so trivial. Any "need" met by the claims over the prior art is simply not attributable to the claimed invention; so, it is not indicative of non-obviousness in any way. *Geo M. Martin*, 618 F.3d at 1304-05 (holding "where the differences between the prior art and the claimed invention are as minimal as they are here, however, it cannot be said that any long-felt need was unsolved").

B. There Is No Evidence Of Adoption Of Others Or Industry Praise Due To The Merits Of The Claimed Invention.

Fellowes's arguments regarding "adoption by others" and "industry praise" are similarly flawed. (*See, e.g.,* A2924.) As the Examiner properly found, there is no such evidence with a nexus to the claimed invention. (A2252.) During the reexamination, Fellowes pointed to vague statements in the art about "anti-jam" technology. (*See, e.g.,* A2924-28.) However, none of these statements refer to the actual elements of the invention, such as the presence sensor and thickness detector and their claimed function. (*See id.*) This fact is dispositive because evidence "must also be linked to the patented invention" to be relevant to non-obviousness. *See Geo M. Martin*, 618 F.3d at 1305; *see also Asyst Techs., Inc. v. Emtrak, Inc.*, 544 F.3d 1310, 1316 (Fed. Cir. 2008) ("While the evidence shows that the overall system drew praise as a solution to a felt need, there was no evidence that the success of the commercial embodiment of the [] patent was attributable to . . . the only material difference between [the prior art] and the patented invention.").

CONCLUSION

The claimed subject matter of the '468 patent would have been obvious under 35 U.S.C. § 103(a). The Decision of the Patent Trial and Appeal Board on claims 9-12 should be reversed, the rejections of the Examiner should be reinstated in their entirety, and this matter should be returned for entry of a reexamination certificate cancelling claims 9-12 of the '468 patent.

January 29, 2015

Respectfully submitted,

/s/Steven R. Trybus
Steven R. Trybus
Principal Counsel
Peter J. Brennan
Michael G. Babbitt
Jenner & Block LLP
353 N. Clark Street
Chicago, Illinois 60654-3456
Telephone: (312) 222-9350

Richard L. Kaiser
Michael Best & Friedrich LLP
100 East Wisconsin Avenue
Milwaukee, Wisconsin 53202
Telephone: (262) 956-6576

Attorneys for Appellant
ACCO Brands Corporation

Addendum

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
95/001,723	09/02/2011	7,963,468	015849-9113	3174

909 7590 02/07/2014

Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

EXAMINER	
DEMILLE, DANTON D	
ART UNIT	**PAPER NUMBER**
3993	
MAIL DATE	**DELIVERY MODE**
02/07/2014	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ACCO BRANDS CORPORATION
Respondent, Requester

v.

FELLOWES, INC.
Appellant, Patent Owner

Appeal 2013-010043
Reexamination Control 95/001,723
Patent No. US 7,963,468 B2[1]
Technology Center 3900

Before STEVEN D.A. McCARTHY, DANIEL S. SONG and RAE LYNN P. GUEST, *Administrative Patent Judges*.

McCARTHY, *Administrative Patent Judge*.

DECISION ON APPEAL

---

[1] Issued June 21, 2011 to Tai Hoon K. Matlin and Eric Gach (the "'468 patent"). The '468 patent issued from Appl. No. 12/616,567, filed November 11, 2009.

STATEMENT OF THE CASE

The Appellant/Patent Owner appeals from a final rejection of claims 9-12. The Examiner has determined that the Respondent/Requester failed to raise any substantial question of patentability as to claims 1-8, 13 and 14. (*See* Right of Appeal Notice mailed July 19, 2012 ("RAN") at 3). No claims were added or amended during the course of the reexamination. (*Id.*) Counsel for both the Patent Owner and the Requester participated in an oral hearing held on December 18, 2013. We have jurisdiction under 35 U.S.C. § 134(b) (2011) and 35 U.S.C. § 315(a) (2011).

We REVERSE.

The decision of the Examiner is set forth in the RAN.[2] The Patent Owner relies on a Patent Owner Appeal Brief dated November 7, 2012 ("Appeal Brief" or "App. Br. PO") and a Patent Owner Rebuttal Brief dated June 3, 2013 ("Rebuttal Brief" or "Reb. Br. PO"). The Patent Owner additionally relies on two Declarations of Tai-Hoon Matlin under 37 C.F.R. § 1.132, dated January 10, 2012 ("Matlin Decl.") and May 14, 2012 ("Supp. Matlin Decl."), respectively. The Respondent/Requester relies on Respondent's Brief dated December 7, 2012 ("Respondent's Brief" or "Resp. Br."). The Requester additionally relies on a Declaration of Paul Aries dated February 8, 2012 ("Aries Decl."). The Requester's position is further explained in the Request for *Inter Partes* Reexamination Under 37

[2] The Examiner's Answer mailed May 3, 2013 incorporates the RAN by reference. The RAN incorporates by references sections of Requester's Comments on Patentee's Response to Action Closing Prosecution dated June 8, 2012.

C.F.R. § 1.913 dated August 23, 2011 ("Request"). Our review is limited to issues and findings of fact raised in these sources. *See* 37 C.F.R. § 41.67(c)(1)(vii) (2011); *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011); *Ex parte Frye*, 94 USPQ2d 1072, 1075-76 (BPAI 2010); *cf. In re Enhanced Security Research, LLC*, Appeal 2013-1114 slip op. at 11-12, *reproduced at* http://www.cafc.uscourts.gov/images/stories/opinions-orders/13-1114.Opinion.1-8-2014.1.PDF (Fed. Cir. Jan. 13, 2014).

Neither the Patent Owner nor the Requester has identified any prior post-grant proceeding involving the '468 patent. The '468 patent has been the subject of lawsuits in the U.S. District Courts for the Northern District of Ohio and the Northern District of Illinois. These lawsuits include *Royal Appliance Mfg. Co. v. Fellowes, Inc.*, Case No. 1:10-CV-2604 (N.D. Ohio, Nugent, J.), which was dismissed on or about October 7, 2013; and *Fellowes, Inc. v. ACCO Brands Corp.*, Case No. 1:10-cv-07587 (N.D. Ill., Leinenweber, J.), which was stayed on November 7, 2013, pending this reexamination proceeding.

GROUNDS OF REJECTION

The Examiner adopts the following grounds of rejection proposed by the Requester:

> The rejection of independent claims 9 and 11 under 35 U.S.C. § 103(a) (2011) as being unpatentable over Utility Model JP S57-

70445U, published April 28, 1982 ("JP '445"),[3] and any one of:

(1)[4] *GBC SHREDMASTER Models 2230S, 2250X Paper Shredders Service Manual*, published in or about November 1997 ("GBC SHREDMASTER Manual") (RAN 4);

(2) Chang (US 6,550,701 B1, issued Apr. 22, 2003) (RAN 7);

(3) Tsai (US 5,775,605, issued Jul. 7, 1998) (RAN 11);

(4) Araki (US 4,842,205, issued Jun. 27, 1989) (RAN 12); and

(5) Bosland (US 3,724,766, issued Apr. 3, 1973) (RAN 13); and

(6) The rejection of claims 10 and 12, which depend from claims 9 and 11, respectively, under § 103(a) as being unpatentable over the combination of JP '445, GBC SHREDMASTER Manual and Yoshida (JP H09-38513A, publ. Feb. 10, 1997)[5] (RAN 14).

---

[3] More specifically, references to "JP '445" will be to an English-language translation of Utility Model JP S57-70445U filed on August 23, 2011 in Appendix B to the Request. A copy of the translation is of record in this proceeding.

[4] The numbers in parentheses reflect the numbering of the rejections in the RAN.

[5] References to "Yoshida" will be to an English-language translation prepared by Asian Technical Translation Pty Ltd. The translation was filed in Appendix C to the Request and is of record in this proceeding. Yoshida was referred to as "JP '513" in the RAN and the briefs.

THE '468 PATENT

The claims on appeal relate to shredders for destroying articles such as sensitive documents, compact discs and expired credit cards. ('468 patent, col. 1, ll. 22-23 and 25-30). According to the Specification of the '468 patent, one such shredder *10* has a shredder mechanism *16* including a plurality of cutter elements *19* mounted on shafts *20*. An electrically powered motor *18* rotates the shafts *20* and the cutting elements *19* through a conventional transmission (that is, gear train) *23*. ('468 patent, col. 3, ll. 41-43 and 50-55; *see also id.* figs. 2 and 8). The shredder *10* receives an article for shredding through a throat or feed-aperture *36*. ('468 patent, col. 4, ll. 22-26 and 30-32).

In addition, the shredder *10* includes a controller *200*. The controller *200* receives signals from a thickness detector *100* and from an infrared presence sensor *150* located below the thickness detector *100* along a side of the feed-aperture *36*. The sensor *150* detects the presence of an article for shredding. The thickness detector *100* detects overly thick stacks of articles that could jam the shredder mechanism *16*. ('468 patent, col. 6, ll. 45-49; col. 10, ll. 38-44; and figs. 6 and 11).

The Specification of the '468 patent states with reference to Figures 8 and 11 that:

> When the sensor **150** senses that an article is passing through a lower portion of the throat **36**, the controller **200** signals the motor **18** to start turning the shafts **20** and cutter elements **19**. Of course, because the detector **100** is also in communication with the controller **200**, if the detector **100** detects that the thickness of the article that has entered the throat is too thick for the

> capacity of the shredder mechanism **16**, the shredder mechanism **16** may not operate, even though the sensor **150** has indicated that it is time for the shredder mechanism **16** to operate.

('468 patent, col. 10, ll. 44-53).

Claim 9 recites, with italics added for emphasis:

> 9. A shredding machine for shredding sheet material, the machine comprising
>
> a feed-aperture and an electric cutting mechanism, the feed-aperture being configured to receive multiple sheets and direct said sheets in a feeding direction towards the cutting mechanism for shredding,
>
> the machine being characterized by the provision of
>
> a thickness detector which is moveable between
>
> a first position in which the thickness detector permits energization of the cutting mechanism and
>
> a second position in which the thickness detector prevents energization of the cutting mechanism,
>
> wherein part of the thickness detector extends into the feed-aperture,
>
> the thickness detector being configured such that said part will be
>
> engaged by sheet material inserted in the feeding direction into the feed-aperture prior to reaching the cutting mechanism, and

moved from said first position to said second position as a result of said engagement,

if the sheet material exceeds a predetermined thickness;

further provided with

maximum thickness indicating means to provide a visual indication to a user of the machine that energization of the cutting mechanism is prevented due to the sheet material moving said part of the thickness detector to said second position;

further comprising

a presence sensor along the feed-aperture for detecting a presence of the sheet material inserted into the feed-aperture, and

a controller coupled to the thickness detector, the presence sensor, the maximum thickness indicating means, and the electric cutting mechanism,

wherein the controller is configured to start energization of the cutting mechanism only in response to the presence sensor detecting the presence of the sheet material inserted into the feed-aperture and the part of the thickness detector not having been moved to the second position by the sheet material;

wherein the controller is configured to prevent the starting of energization of the cutting mechanism and also actuate the maximum thickness indicating means to provide the visual indication in response to the part of the thickness detector moving to the second position.

(App. Br. PO 45 (Claims App'x)).

ISSUES

The Patent Owner states that independent "[c]laim 11 also recites materially the same language as claim 9, except that the 'indicating means' is defined as an 'indicator' in non-means language." (App. Br. PO 6). The Examiner summarily concludes that the same reasoning underlying the rejection of claim 9 also justifies the rejection of claim 11. (*See* RAN 6-7, 11, 12 and 13). The arguments in the Respondent's Brief consistently address the patentability of claims 9 and 11 together. Therefore, this opinion will only address grounds of rejection (1)-(5) (*see supra* pp. 3-4) in the context of the language of claim 9. Similar findings and conclusions will apply to claim 11.

A single issue is dispositive of the appeal:

> Has the Examiner or the Requester persuasively shown that it would have been obvious to one of ordinary skill in the art to combine in a shredding machine a presence sensor, a thickness detector and a controller configured to satisfy the limitations of claim 9 italicized above?

FINDINGS OF FACT

The record supports the following findings of fact ("FF") by a preponderance of the evidence.

1. JP '445 describes a paper shredder including a shredding portion having cutting blades *5* rotated by an electric motor. (*See*, *e.g.*, JP '445 at 2 ("Referring to the drawing, papers to be shredded . . . reach a rotating blade 5 configured to be rotated by a rotational shaft 4 to be

shredded thereby.")). JP '445 teaches that most conventional shredders as of its publication date were equipped with speed reduction portions (for example, gear boxes or transmissions) for amplifying output torques from their motors to cause their shredding portions to operate. (JP '445 at 1; *see also* Aries Decl., para. 6).

2. JP '445 teaches that:

> Conventional shredders have utilized an apparatus (for example, a circuit breaker) that detects a change in motor current and disconnects the motor from a power source when the motor current exceeds a predetermined value, as a means for protecting a driving portion against an excessive load applied to a shredding portion. However, although such an apparatus can prevent burnout of the motor when a lock [that is, a jam] occurs, this mechanism cannot prevent another portion such as a speed reduction portion from receiving an excessive load two to five times larger than the rated range of use. This is because the apparatus is configured to function upon detection of a change in motor current that is made after a lock [that is, a jam] occurs.

(JP '445 at 1) This teaching implies, at minimum, that the problem of shredder jamming was known as of the filing date of the '445 patent.

3. The Patent Owner's Declarant, Tai-Hoon Matlin ("Matlin"), reasonably explains the subject matter of claims 9 and 11 by stating that:

> The claimed "presence sensor" is used to determine whether an article is present, and the "thickness detector" determines whether it violates the "predetermined thickness" based on movement to the "second position." As a result, "only" if the sheet material is detected as present by the "presence sensor" and it is less than the

> "predetermined thickness" (because the thickness detector part has not reached the "second position"), the "controller" will "start energization of the cutting mechanism." By requiring the "controller" to be responsive to both these conditions, this prevents the "controller" from *starting* a shredding operation where the sheet material is present but too thick, which will cause jamming of the shredder.

(Matlin Decl., para. 25 (italics added for emphasis)).

4. As the Patent Owner points out (*See* App. Br. PO 8), none of the references cited in the rejections on appeal teach a shredding machine including a controller prevented from *starting* to supply energy to a motor driving the cutting element where sheet material is present but is sufficiently thick that a jam is likely.

JP '445

5. JP '445 describes with reference to its sole drawing figure a shredding operation in which "papers to be shredded are fed along a feeding guide plate 1, pass through a thickness detection portion 2, and then reach a rotating blade 5 configured to be rotated by a rotational shaft 4 to be shredded thereby." (JP '445 at 2).

6. The sole drawing figure of JP '445 depicts the thickness detection portion *2* as a lever. As depicted in the drawing figure, an upstream end of the lever is attached to a housing of a determination apparatus *3*. A downstream end of the lever extends through the feeding guide plate *1* into the path of the papers to be shredded. A mid-portion of the lever between the upstream and downstream ends overlies a limit switch

of the determination apparatus *3*. One may infer that the lever pivots and displaces the limit switch to indicate an excessive thickness of paper fed to the paper shredder.

7. JP '445 teaches that:

> a total thickness of paper fed to be shredded is detected, and the exceedance of the thickness beyond a predetermined value causes the warning apparatus to issue a warning to a user to prompt the user to stop the supply of the excessive load or to cause the rotation of the motor to be stopped. This arrangement can prevent an excessively large load out of the rated range of use from being applied to the speed reduction portion disposed between the motor and the shredding portion.

(JP '445 at 3). The warning apparatus may be a warning lamp or buzzer to notify the shredder user that an excessive thickness of paper has been fed into the shredder. (JP '445 at 2).

8. JP '445 specifically teaches the use of a limit switch in the determination apparatus *3* "since this switch can serve as a detector of a thickness of paper fed to be shredded, and also serve as an apparatus for automatically stopping the motor when more than a predetermined amount of paper is fed." (JP '445 at 3).

9. JP '445 does not appear to describe a controller coupled to the limit switch.

10. The Requester's declarant, Paul Aries ("Aries"), states that:

> JP '445 is directed to finding a way <u>to prevent shredder jamming before it occurs</u> so that expensive overdesigning of the speed reduction portion (to accommodate high loading due to jamming) is not needed. Its solution is the use of a

> thickness detector in the throat of the shredder and upstream of the cutting blades. The thickness detector is designed to detect the thickness of a stack of sheets inserted into the throat, and if the stack is determined to be too thick, the shredder will activate a warning lamp or buzzer to alert a user to stop the cause of the excessive loading, or will simply cut electrical power to the motor. Both options are clearly intended to prevent jamming before it occurs, with the warning lamp or buzzer option relying on user action, and the option of cutting electrical power to the motor being the automated solution.

(Aries Decl., para. 7).

11. While Aries' statement is correct, preventing shredder jamming before it occurs is not the same as preventing starting of the motor driving the cutting element if a jam is likely. JP '445 teaches stopping the running motor if an excessive thickness of paper is detected. (*See* FF 8). JP '445 does not teach a controller configured to prevent a power supply from starting to energize the motor driving the cutting element where sheet material is present but is too thick.

12. JP '445 teaches that:

> In the case of employing the warning apparatus, the shredder should be designed so that a sufficient distance is provided between the detection portion and the shredding portion, whereby the shredder user can have sufficient time to stop the motor or the supply of papers after receiving the warning.

(JP '445 at 2).

13. Aries states that:

> JP '445 explicitly describes the importance of providing sufficient distance between the detection

> portion and the shredding portion to prevent the thick stack from reaching the cutters, thereby preventing a jam before it occurs. While this discussion of providing sufficient distance is in relation to the warning apparatus option, its teachings apply equally to the power cutting option. The point being that the overly-thick stack of sheets should not reach the cutters, regardless of whether the shredder is already running or is just getting started.

(Aries Decl., para. 9).

14. JP '445 teaches providing sufficient time for a shredder user to react once the thickness detector detects an excessive thickness of paper fed to the paper shredder. It does not teach that care must be taken to design the distance between the detection portion and the shredder portion to provide the determination apparatus *3* (instead of the shredder user) sufficient time to stop the motor once an excessive thickness of paper is detected. Even more emphatically, JP '445 does not teach or suggest configuring a controller to prevent energy from ever being supplied to a motor driving a cutting element where sheet material is present but is sufficiently thick that a jam is likely.

GBC SHREDMASTER Manual

15. The GBC SHREDMASTER Manual describes adjustment, disassembly, operation, preventive maintenance and troubleshooting procedures for GBC SHREDMASTER 2230S and 2250X shredders. (GBC SHREDMASTER Manual 4). Each of the two shredder models has two rotating cutting shafts driven by an electric motor for shredding paper. (*Id.* at 8; *see also id.* at 21, fig. 8.2 (ref. numerals 04-06)).

16. Each of the two shredder models includes a controller mounted on a PC board. The GBC SHREDMASTER Manual also referred to the PC boards as "control boards." According to the GBC SHREDMASTER Manual, these PC boards "sense" door ajar, bin full and jam state conditions. The PC boards also illuminate appropriate control panel icons when the shredder is in any of these conditions. (GBC SHREDMASTER Manual 9; *see also id.* at 19, fig. 8.1 (ref. numeral 06)).

17. Each of the two shredder models also includes a mechanical actuator. (GBC SHREDMASTER Manual 8). The mechanical actuator includes a trigger switch. (*See id.* at 23, fig. 8.3 (ref. numeral 6)). The mechanical actuator acts as a presence detector for detecting the presence of paper fed to the shredder. According to the GBC SHREDMASTER Manual, "[w]hen the mechanical actuator is triggered on, power is supplied from the hot side of the circuit through the following components: the fuse, door ajar switch, bin full switch and the motor." (*Id.* at 8; *see also id.* at 7 ("To shred simply insert paper into the throat of the unit. Once your document has activated the Automatic On switch the unit will start and then will stop once your document is shredded.")). The PC Board includes an input *JP5* for positioned to receive a signal from the trigger switch. (GBC SHREDMASTER Manual 12-13; *see also id.* 8 ("The neutral line is fed through the control board, power switch, trigger switch (only in the auto mode) and the motor.")).

18. The GBC SHREDMASTER 2230S and 2250X shredders have "jam stopper" circuitry. According to the GBC SHREDMASTER Manual, "[w]hen the shredder is severely loaded, the jam stopper circuitry senses the

condition and illuminates the reverse icon." (GBC SHREDMASTER Manual 8; *see also id.* at 7 ("OVERLOAD")). The "jam stopper" circuitry also stops the electric motor driving the cutting shafts when the capacity of the shredder is exceeded. (*See id.* at 4 ("**Overload Warning** – Whenever the capacity of the shredder is exceeded the unit will stop shredding and the 'Reverse' icon will illuminate.")).

19. Matlin states that the GBC SHREDMASTER 2230S and 2250X shredders use current or speed sensors on the shredder motor to detect jams. (Matlin Decl., para. 20). This statement is consistent with the description of the GBC SHREDMASTER Manual, which does not show a switch or other electromechanical sensor for detecting jams. (*See, e.g.*, GBC SHREDMASTER Manual 12-13). The "jam stopper" circuitry of the GBC SHREDMASTER 2230S/2250 X shredders does not include a thickness detector. (*See* Supp. Matlin Decl., para. 2). Furthermore, the "jam stopper" circuitry is depicted as residing on the PC board. (*See* GBC SHREDMASTER Manual 12-13). The PC Board does not include an input for a "jam state."

20. In other words, the "jam stopper" circuitry of the GBC SHREDMASTER 2230S/2250 X shredders addresses the problem of jamming by detecting a symptom of a jam, namely, an increase in current demand or a decrease in output speed by the motor, after a jam occurs. (*See id.*) JP '445 criticizes this solution. (*See* FF 2). In addition, this solution to the problem of jamming is different from the solution of preventing energy from being supplied to a motor driving a cutting element in the first place if sheet material is present but is sufficiently thick that a jam is likely.

Chang

21. Chang describes a machine for shredding both sheets of paper and optical discs. (Chang, col. 3, ll. 17-21). The machine includes a pair of shredding roller blades *18* driven by way of a gearbox. The machine also includes two openings or "inports" *14*, *15* for conducting paper and optical discs, respectively, to the shredding roller blades *18*. (Chang, col. 3, ll. 22-34 and Fig. 1).

22. Chang teaches that:

> The paper inport **14** and the disc inport **15** are, respectively, provided with a paper touch switch **16** and a disc touch switch **17** at appropriate locations of the openings or the channel walls. As shown in FIGS. 2 and 3, while feeding a piece of paper **25** [into the paper inport *14*], the paper touches and activates the paper touch switch **16** so as to activate the shredding roller blades **18** to perform the intermeshing and shredding task. Likewise, while feeding an optical disc **26** [into the disc inport *15*], the disc touches and activates the disc touch switch **17** so as to activate the shredding roller blades **18** to perform the intermeshing and shredding task.

(Chang, col. 3, ll. 39-49). The touch switches *16*, *17* act as presence sensors for activating the shredding roller blades *18* in response to the presence of the sheet material or optical discs inserted into the inports *14*, *15*, respectively.

23. Chang does not teach preventing energy from being supplied to a motor driving a cutting element in the first place if sheet material is present but is sufficiently thick that a jam is likely.

Tsai

24. Tsai describes a shredding machine *10* including a cutting device *12* and a paper feed inlet *111* opening onto the cutting device *12*. (Tsai, col. 2, ll. 58-65 and fig. 1). Figure 1 of Tsai depicts the cutting device *12* as having rotating cutting elements.

25. Tsai's shredding machine *10* also includes a control switch assembly *13* in which a circuit board *130* mounts a multi-position slide switch *131* and a contact switch *132*. The multi-position slide switch *131* slides between AUTO and OFF/REVERSE positions. (Tsai, col. 2, l. 65 – col. 3, l. 7 and fig. 2).

26. Tsai's control switch assembly *13* also includes a contact arm actuator *30* which extends into the paper feed inlet *111* when the multi-position slide switch *131* is in the AUTO position. The contact switch *132* cooperates with a contact arm actuator *30* to activate the cutting device *12* and automatically initiate shredding when a paper sheet is placed into the paper feed inlet *111*. (Tsai, col. 3, ll. 28-30; col. 4, ll. 9-25; and fig. 2). The combination of the contact switch *132* and the contact arm actuator *30* acts as a presence sensor for detecting the presence of paper inserted into the paper feed inlet *111*.

27. Tsai teaches that, "when a paper jam occurs, the slider **1311** [of the multi-position slide switch *13*] is placed in the second switch position so that the cutting device **12** can be operated in the REVERSE mode in order to release the same from the paper jam condition." (Tsai, col. 4, ll. 48-53). As the multi-position slide switch *13* is moved from the AUTO position to the OFF/REVERSE position, the contact actuator arm *30* is withdrawn from the

paper feed inlet *111*. Tsai teaches withdrawing the contact actuator arm *30* from the paper feed inlet *111* when the multi-position slide switch *13* is moved into the OFF/REVERSE position in order to protect the contact actuator arm *30* from damage when the jammed paper is moved in a reverse direction away from the cutting device *12*. (Tsai, col. 4, ll. 34-41 and 53-57; *see also id.*, fig. 5).

28. Tsai does not teach preventing energy from being supplied to a motor driving a cutting element in the first place if sheet material is present but is sufficiently thick that a jam is likely. (*Cf.* Matlin Decl., para. 18 ("[I]nstead of finding a way to cure the problem with shredder jamming, [Tsai] designed a very complicated approach for treating the symptom of broken contact presence sensors.")).

Araki

29. Araki describes a shredder *1* having both a batch feed system and a single feed system. (Araki, col. 3, ll. 52-56; col. 4, ll. 12-18 and fig. 2). The single feed system makes use of a feed aperture *3* designed to receive one-to-three sheets of paper for shredding. The feed aperture *3* directs papers to be shredded to a pair of cutting rollers *6a*, *6b*. (Araki, col. 4, ll. 7-11). The cutting rollers *6a*, *6b* are driven by an electric drive motor *8*. (Araki, col. 4, ll. 3-6; *see also id.*, figs. 2 and 4).

30. Araki's shredder *1* also includes a sensor switch *40* "positioned and operable so as to detect the insertion of the paper to be shredded into the paper feed aperture **3**." (Araki, col. 6, ll. 19-21). As depicted in Figure 4 of Araki, an actuator arm appears to overlie a push button of a sensor switch

40. When paper inserted into the paper feed aperture *3* pivots the actuator arm against the push button, the motor *8* drives the cutting rollers *6a*, *6b* in a forward direction so as to shred paper inserted into the paper feed aperture *3*. (Araki, col. 8, ll. 1-5). Therefore, the combination of the sensor switch *40* and the actuator arm acts as a presence sensor for detecting the presence of paper inserted into the paper feed aperture *3*.

31. Araki's shredder *1* includes a detector circuit for detecting excessive loads imposed on the motor *8* driving the cutting rollers *6a*, *6b* due to paper jams. As depicted in Figure 12 of Araki, the detector circuit includes a comparator *68* and a timing circuit *69* for detecting when the current drawn by the motor *8* exceeds a predetermined value for a predetermined time. (*See* Araki, col. 9, ll. 29-42 and fig. 12). When the detector circuit finds that the current drawn by the motor *8* exceeds a predetermined value for a predetermined time, the drive signal *MFR* for driving the motor *8* is cut off, thereby bringing the cutting rollers *6a*, *6b* to a halt. (Araki, col. 8, ll. 5-8; *see also id.*, col. 7, ll. 42-47 and fig. 8).

32. Araki's shredder *1* includes a controller, namely, the control circuitry depicted in Figures 7-13 of Araki. This controller as depicted in Figures 8 and 12 encompasses the comparator *68* and the timing circuit *69*. Araki's controller as depicted in Fig. 8 appears to receive an input from the sensor switch *40*.

33. Araki's control circuit, like the "jam stopper" circuitry of the GBC SHREDMASTER 2230S and 2250X shredders, addresses the problem of jamming by detecting an increase in current demand after a jam occurs. (*See* Araki, col. 9, ll. 29-42 and fig. 12). As mentioned earlier, JP '445

criticizes this solution. (*See* FF 2). Araki does not teach preventing energy from being supplied to a motor driving a cutting element in the first place if sheet material is present but is sufficiently thick that a jam is likely.

Bosland

34. Bosland describes a paper shredder device including a pair of rotatable shredders *20*, *22* mounted within a housing *10*. (Bosland, col. 1, ll. 2-5, 51-52 and 59-62; *see also id.*, fig. 3). A motor *30* and suitable reduction gears *28* drive the rotatable shredders *20*, *22*. (Bosland, col. 2, ll. 19-21 and fig. 2). A cover *12* secured to the housing *10* includes a paper chute *40* for directing paper into a nip between the two rotatable shredders *20*, *22*. (Bosland, col. 1, ll. 52-53; col. 2, ll. 22-25; and fig. 3).

35. Bosland's paper shredding device also includes a sensing wire *56* which extends into the paper chute *40*. The sensing wire *56* cooperates with a miniature snap-action switch *58* to energize the motor *30* driving the rotatable shredders *20*, *22* in response to insertion of a document into the paper chute *40*. (Bosland, col. 2, ll. 35-48 and figs. 2 and 3). The combination of the sensing wire *56* and the miniature snap-action switch *58* acts as a presence sensor for detecting the presence of paper inserted into the paper chute *40*.

36. Bosland does not teach preventing energy from being supplied to a motor driving a cutting element in the first place if sheet material is present but is sufficiently thick that a jam is likely.

Yoshida (JP '513)

37. Yoshida describes a shredder *1* having a continuous feed system *4*, *5* for feeding either single documents at a time to motor-driven document shredding means *2*. (Yoshida, paras. 0024, 0025, 0035 and 0040 (describing modes of implementation 7 and 8); *see also id.*, fig. 7). Yoshida criticizes manually fed shredders as inconvenient because the manual feeding of documents to be shredded is time consuming and because the feeding of too many documents at one time could cause shredder overloads. (*See* Yoshida, paras. 0004 and 0005). As the Patent Owner points out (*see* App. Br. PO 22), Yoshida proposes solving the problem of shredder jams caused by manually feeding too many sheets to the shredding means at one time by using a continuous feed system instead of a manual feed system. (Supp. Matlin Decl., para. 20).

38. Yoshida describes a "mode of implementation" 8, depicted in Figures 7 and 8, in which the shredder *1* includes a sheet thickness detection sensor *221* communicating with a control part or controller *10*. (*See* Yoshida, para. 0040 and fig. 7). As depicted in Figure 8, Yoshida's sheet thickness detection sensor *221* consists of a pivotable lever which cooperates with a photosensor *223* to determine the thickness of a sheet. (*See* Yoshida, para. 0043). Figure 8 depicts the pivot point *224* of the lever as being closer to the path of the paper to be shredded than to the photosensor *223*. Aries states that, "[t]o achieve good accuracy and sensitivity, [Yoshida] discloses an arrangement in which a small amount of movement at the paper end of the pivoting arm results in a larger amount of movement at the sensor end of the arm." (Aries Decl., para. 20).

ANALYSIS

Claims 9 and 11

JP '445 describes a shredding machine which does not include:

> a presence sensor along the feed-aperture for detecting a presence of the sheet material inserted into the feed-aperture, and
>
> a controller coupled to the thickness detector, the presence sensor, the maximum thickness indicating means, and the electric cutting mechanism,
>
> wherein the controller is configured to start energization of the cutting mechanism only in response to the presence sensor detecting the presence of the sheet material inserted into the feed-aperture and the part of the thickness detector not having been moved to the second position by the sheet material; [and]
>
> wherein the controller is configured to prevent the starting of energization of the cutting mechanism and also actuate the maximum thickness indicating means to provide the visual indication in response to the part of the thickness detector moving to the second position.

(*See* FF1 and 5-8; *see also* RAN 4; App'x K at 1-3).

The Examiner finds that "JP '445 fails to teach how the user controls turning on and off the shredder." (RAN 7, 11, 12 and 13). The Examiner finds that "[p]roviding [a] presence sensor in the feed-aperture of JP '445 would provide just such a conventional means to automatically turn the cutting mechanism on when papers are inserted into the feed aperture." (RAN 8). More specifically, the Examiner cites GBC SHREDMASTER Manual, Chang, Tsai, Araki and Bosland as each being exemplary of "the convention of using a presence sensor [in a shredder] to automatically turn

the cutting mechanism on whenever sheet material is being inserted into the feed-aperture." (RAN 11, 12 and 13; *see also id.* at 6 and 7; Resp. Br. 3; Request, App'x K at 3, 22, 32, 42 and 52; FF 17, 22, 26, 30 and 35).

In addition, the shredding machines described by GBC SHREDMASTER Manual and Araki include controllers which receive inputs from their respective presence sensors (*see* RAN 15-16; Request, App'x K at 4 and 43; FF 17 and 32). Tsai's shredding machine includes a controller which incorporates a switch component of its presence sensor (*see* Request, App'x K at 33; FF 25 and 26). The controllers of the shredding machines described by GBC SHREDMASTER Manual and Araki each include circuitry for detecting excessive current drawn by the motor or reduced motor speed, both of which are symptomatic of an existing jam. (FF 18-20, 31-33).

Yet, neither the Examiner nor the Requester has established that the subject matter of claim 9 would have been obvious. The Examiner finds that the "Patent [O]wner claims a combination that only unites old elements [namely, a thickness detector as described by JP '445 with a conventional presence sensor and a controller] *with no change in the respective functions of those elements*, and the combination of those elements yields predictable results." (RAN 9 (italics added for emphasis); *see* Resp. Br. 4; *see also KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 415-16 (2007)(quoting *Great Atlantic & Pacific Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 152 (1950))). Neither the Examiner nor the Requester has established this by a preponderance of the evidence.

The subject matter of claim 9 unites the thickness detector, the presence sensor and the controller to perform a function not disclosed or suggested in the cited prior art, namely, "prevent[ing] the *starting* of energization of the cutting mechanism . . . in response to the part of the thickness detector moving to the second position." None of the references describes this limitation. (*See* FF 4; *see also* FF 11, 14, 20, 23, 28, 33 and 36).[6] For example, JP '445 describes automatically *stopping* a motor driving the cutting element if an excessive thickness of paper is fed to the shredding machine. (*See* FF 8). GBC SHREDMASTER Manual and Araki are understood as each teaching detecting a jam by detecting a decrease in the speed or increase in the current demand of the motor after the cutting mechanism has been energized. (*See* FF 18-20 and 31-33). Chang, Tsai and Bosland do not teach the claimed function, either. (*See* FF 23, 28 and 36).

---

[6] The Requester criticizes the Patent Owner's argument that "there is nothing in the applied art that shows the functionality of the controller using two inputs relevant to the inserted sheets to make a determination as to whether to start energization of the shredder." (Resp. Br. 4-5, quoting App. Br. PO 8). The Requester argues that "[o]ne cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references." (Resp. Br. 5, citing *In re Keller*, 642 F.2d 413 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091 (Fed. Cir. 1986)). Section 103(a) itself contemplates that the subject matter of a claim might have been obvious though no single prior art reference identically discloses or describes the subject matter as set forth in 35 U.S.C. § 102 (2011). *See* § 103(a). Nevertheless, as the Patent Owner points out (*see* Reb. Br. PO 2-3), the failure of *all* of the cited references to disclose or describe a claim limitation is a deficiency in the teachings of the prior art as a whole rather than merely a failure on the part of a single reference to anticipate. Absent a persuasive explanation why the claimed subject matter would have been obvious, one generally cannot conclude that the subject matter would have been obvious.

Since the Patent Owner is correct in arguing that at least the controller recited in claim 9 performs a function not disclosed or suggested in the prior art, there is a change in the respective function of at least this element. (*See* App. Br. PO 7-8).

Alternatively, the Examiner concludes that one of ordinary skill in the art would have had reason to add a presence sensor to the shredding machine described in JP '445, namely, to automatically turn on the cutting mechanism when papers are inserted in the feed-aperture.[7] The Examiner reasons that it would have been obvious:

> to modify JP '445 to include a presence sensor in the feed-aperture . . . so that the cutting mechanism

---

[7] The Examiner also concludes that claim 9 is unpatentable "because it is no more than the predictable use of prior art elements according to their established functions resulting in . . . the mere application of a known technique to a piece of prior art ready for improvement." (RAN 9; *see* Resp. Br. 4; *see also KSR Int'l* at 417). It appears that the shredding machine described by JP '445 was "ready for improvement" only in the sense that one of ordinary skill in the art might have had reason to add a conventional presence sensor to provide an automated way of turning on and off the shredder. In that sense, there is no logical distinction between the Examiner's conclusion that one of ordinary skill in the art might have had reason to add a presence sensor to the shredding machine described by JP '445 and the Examiner's conclusion that the shredding machine described by JP '445 was "ready for improvement."

For similar reasons, there is no logical distinction between the Examiner's conclusion that one of ordinary skill in the art would have had reason to add a presence sensor to the shredding machine described by JP '445 and the Requester's argument that the proposed modification represents "known work in one field of endeavor prompting variations of it for use in the same field based on design incentives or market forces." (Resp. Br. 4). It appears that the "design incentive" would have been to provide an automated way of turning on and off the shredder.

> can turn on automatically when it senses paper of a proper thickness is being inserted into the feed-aperture[;] and modify the controller so that it can handle the respective functions of the presence sensor, thickness detector, cutting mechanism and warning lamp.

(RAN 9). The Examiner additionally reasons that:

> There are only two ways to include the presence sensor in the feed-aperture, either before or after the thickness detector 2 of JP '445. Placing it before the thickness detector would turn on the cutting mechanism just to have the cutting mechanism to turn off a split second [later] when the thickness detector detects too much paper is being inserted in the feed aperture. This is a waste of energy, wear and tear on the cutting mechanism and would confuse and alarm the user. Placing the presence sensor after the thickness detector would have the thickness detector detect first whether or not the paper exceeds the predetermined maximum amount of paper before the paper reaches the presence sensor. If the paper being inserted exceeds the maximum thickness the thickness detector would prevent communication between the power source and the shredder motor such that when the excessive paper reaches the presence sensor and the presence sensor attempts to turn on the shredder motor, the presence sensor wouldn't be able to turn on the shredder because the thickness detector has already disabled the cutting mechanism. One of ordinary skill in the art would determine the second scenario is the better alternative.

(RAN 5-6; *see also* Resp. Br. 5-7, quoting Aries Decl., paras. 15-17).

This reasoning is not persuasive. The cited prior art teaches manually or automatically stopping the motor driving the cutting element

when either the fact or the likelihood of a jam is detected. Neither the Examiner nor the Requester has demonstrated adequately that one of ordinary skill in the art would have known to "prevent the starting of energization of the cutting mechanism . . . in response to the part of the thickness detector moving to the second position."

The Examiner reasons that it would have been obvious to "modify the controller so that it can handle the respective functions of the presence sensor, thickness detector, cutting mechanism and warning lamp." (RAN 9). Based on the evidence, only impermissible hindsight would have led one of ordinary skill in the art to configure the controller to perform the additional function of preventing the starting of energization of the cutting mechanism in response to the part of the thickness detector moving to the second position. Although the Examiner provides reasoning to explain why one of ordinary skill in the art might have placed a *thickness detector* upstream of a *presence sensor* in the feed aperture of a shredding machine, this reasoning does not explain why one of ordinary skill might have configured a controller to perform the function recited in claim 9. We do not sustain the rejection of claims 9 and 11 under § 103(a) as being unpatentable over JP '445 and any one of GBC SHREDMASTER Manual, Chang, Tsai, Araki and Bosland.

Claims 10 and 12

The Examiner concludes that the subject matter of dependent claims 10 and 12 would have been obvious from the combined teachings of JP '445, GBC SHREDMASTER Manual and Yoshida. In support of this rejection,

the Examiner and the Requester rely on the same findings and reasoning used to reject parent claims 9 and 11. In addition, the Examiner finds that Yoshida "teaches a sensor 223 and the part 221 includes a detectable element in which a portion thereof that is above the pivot point 224 amplifies the movement of the detectable element below the pivot point." (RAN 14, citing Request, App'x L; *see also* FF 38). Even assuming this finding to be correct for purposes of this appeal, the finding does not remedy the deficiencies which prompted the decision not to sustain the rejection of claims 9 and 11 over the combined teachings of JP '445 and GBC SHREDMASTER Manual. (*Accord* FF 37; *see* Reb. Br. PO 5). We do not sustain the rejection of claims 10 and 12 under § 103(a) as being unpatentable over JP '445, GBC SHREDMASTER Manual and Yoshida.

CONCLUSION

For these reasons, we do not sustain grounds of rejection (1)-(6) proposed by the Requester and adopted by the Examiner. Our decision is based on our conclusion that the prior art cited by the Requester, in and of itself, does not provide an adequate factual underpinning to conclude that the subject matter of claims 9-12 would have been obvious. Moreover, based on the evidence of record, the articulated rationale relied upon by the Examiner appears to be based on impermissible hindsight. Therefore, we make no findings as to any assertions of fact relating to secondary considerations of patentability.

DECISION

We REVERSE the Examiner's decision rejecting claims 9-12.

Requests for extensions of time in this *inter partes* reexamination proceeding are governed by 37 C.F.R. § 1.956 (2011).

REVERSED

Appeal 2013-010043
Reexamination Control 95/001,723
Patent No. US 7,963,468 B2

Patent Owner:

PILLSBURY WINTHROP SHAW
PITTMAN, LLP (NV)
P.O. Box 10500
McLean, VA 22102

Third Party Requester:

MICHAEL BEST & FRIEDRICH LLP
10 EAST WISCONSON AVENUE
SUITE 3300
MILWAUKEE, WI 53202

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
95/001,723	09/02/2011	7,963,468	015849-9113	3174

909 7590 07/18/2014
Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

EXAMINER	
DEMILLE, DANTON D	
ART UNIT	PAPER NUMBER
3993	

MAIL DATE	DELIVERY MODE
07/18/2014	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ACCO BRANDS CORPORATION
Respondent, Requester

v.

FELLOWES, INC.
Appellant, Patent Owner

Appeal 2013-010043
Reexamination Control 95/001,723
Patent No. US 7,963,468 B2[1]
Technology Center 3900

Before STEVEN D.A. McCARTHY, DANIEL S. SONG and RAE LYNN P. GUEST, *Administrative Patent Judges*.

McCARTHY, *Administrative Patent Judge*.

DECISION ON REQUEST FOR REHEARING

In a "Decision on Appeal," mailed February 7, 2014 (Decision"), we reversed the Examiner's decision adopting grounds of rejection 1-6 against claims 9-12 under 35 U.S.C. § 103(a) (2011). The

[1] Issued June 21, 2011 to Tai Hoon K. Matlin and Eric Gach (the "'468 patent"). The '468 patent issued from Appl. No. 12/616,567, filed November 11, 2009.

Requester seeks rehearing of this decision. ("Respondent/Third Party Requester Request for Rehearing under 37 C.F.R. § 41.79," dated March 7, 2014 ("Rehearing Request" or "Reh'g Req.")). The Patent Owner has responded. ("Patent Owner's Opposition to Request for Rehearing," dated March 14, 2014).

Requests for rehearing are limited to matters overlooked or misapprehended by the Board in rendering the original decision. *See* 37 C.F.R. § 41.79(b)(1) (2011). We grant the request for rehearing to the extent that we have considered the three points listed on page 2 of the Rehearing Request but otherwise deny the request.

We begin from the principle of law that a party taking a position adverse to the patentability of a claim generally bears the burden of proving a factual underpinning for a rejection of the claim by preponderance of the evidence. *See Rambus Inc. v. Rea*, 731 F.3d 1248, 1255 (Fed Cir. 2013). As to the first point raised in the Rehearing Request, we find as fact that neither the Examiner nor the Requester has proven by preponderance of the evidence that placing the thickness detector upstream of the presence sensor, regardless how close, necessarily would have resulted in *preventing* the start of energization of a cutting mechanism of a shredder in response to a part of the thickness detector moving to a second position. As a consequence, neither the Examiner nor the Requester has proven the subject matter of claim 9 as a whole would have flowed naturally from, or would have been suggested by, merely combining a threshold detector and a presence sensor in the feed-aperture of a shredder for the purpose of obtaining the known function of a threshold detector and the known function of a presence detector.

As to the second point, we find as fact that Yoshida[2] did not teach preventing the start of energization of a cutting mechanism of a shredder in response to a part of the thickness detector moving to a second position. (FF[3] 11 and 14). Teaching the use of a thickness detector to stop an energized motor is not the same as teaching that the energization of the cutting mechanism should be prevented. Neither the Requester nor the Examiner has provided persuasive reasoning to demonstrate that Yoshida would have suggested the latter to one of ordinary skill in the art.

As to the third point, we find as fact that neither the Examiner nor the Requester has proven by preponderance of the evidence that one of ordinary skill in the art would have known, as a matter of common sense or otherwise, that a threshold detector upstream of a presence sensor should have been used to *prevent the starting* of energization of the cutting mechanism in response to the part of the thickness detector moving to the second position. (*See, e.g.*, FF 4; *see also* FF 11, 14, 20, 23, 28, 33 and 36). Therefore, neither the Examiner nor the Requester has proven that it would have been a matter of common sense to configure a controller in a shredder

> to start energization of [a] cutting mechanism [of the shredder] only in response to the presence sensor detecting the presence of . . . sheet material inserted into [a] feed-aperture [of the shredder] and

---

[2] Yoshida (JP H09-38513A, publ. Feb. 10, 1997). References to "Yoshida" will be to an English-language translation prepared by Asian Technical Translation Pty Ltd. The translation was filed in Appendix C to the Request and is of record in this proceeding. Yoshida was referred to as "JP '513" in the Request.

[3] The acronym "FF" refers to Findings of Fact listed on pages 8-21 of the Decision.

> [a] part of the thickness detector not having been moved to [a] second position by the sheet material; [and] . . .
>
> to prevent the starting of energization of the cutting mechanism . . . in response to the part of the thickness detector moving to the second position

as recited in claim 9.

DECISION

We grant the request for rehearing to the extent that we have considered the three points listed on page 2 of the Rehearing Request but otherwise deny the request.

Requests for extensions of time in this *inter partes* reexamination proceeding are governed by 37 C.F.R. § 1.956 (2011).

A party seeking judicial review of a final decision of the Board must timely serve notice on the Director of the United States Patent and Trademark Office. *See* 37 C.F.R. § 1.983 (2011) and 37 C.F.R. § 90.1 (2011).

DENIED

ak

Appeal 2013-010043
Reexamination Control 95/001,723
Patent No. US 7,963,468 B2

Patent Owner:

PILLSBURY WINTHROP SHAW
PITTMAN, LLP (NV)
P.O. Box 10500
McLean, VA 22102

Third Party Requester:

MICHAEL BEST & FRIEDRICH LLP
100 EAST WISCONSON AVENUE
SUITE 3300
MILWAUKEE, WI 53202

US007963468B2

(12) **United States Patent**
Matlin et al.

(10) **Patent No.: US 7,963,468 B2**
(45) **Date of Patent: *Jun. 21, 2011**

(54) **SHREDDER WITH THICKNESS DETECTOR**

(75) Inventors: **Tai Hoon K. Matlin**, Round Lake Beach, IL (US); **Eric Gach**, Mount Prospect, IL (US)

(73) Assignee: **Fellowes, Inc.**, Itasca, IL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **12/616,567**

(22) Filed: **Nov. 11, 2009**

(65) **Prior Publication Data**

US 2010/0051731 A1 Mar. 4, 2010

Related U.S. Application Data

(63) Continuation of application No. 11/444,491, filed on Jun. 1, 2006, now Pat. No. 7,631,822, which is a continuation-in-part of application No. 11/177,480, filed on Jul. 11, 2005, now Pat. No. 7,661,614, which is a continuation-in-part of application No. 10/937,304, filed on Sep. 10, 2004, now Pat. No. 7,311,276, said application No. 11/444,491 is a continuation-in-part of application No. 11/385,864, filed on Mar. 22, 2006, now Pat. No. 7,798,435.

(51) **Int. Cl.**

B02C 4/32	(2006.01)
B02C 7/14	(2006.01)
B02C 9/04	(2006.01)
B02C 11/08	(2006.01)

(52) **U.S. Cl.** **241/36**; 241/236; 241/101.3

(58) **Field of Classification Search** 241/36, 241/236, 101.3

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,221,516 A	4/1937	Hathaway
3,619,537 A	11/1971	Nara et al.
3,724,766 A	4/1973	Bosland

(Continued)

FOREIGN PATENT DOCUMENTS

DE	3313232	10/1984

(Continued)

OTHER PUBLICATIONS

Australian Examination Report for Australian Innovation Patent Application No. 2010100056, dated Mar. 5, 2010.

(Continued)

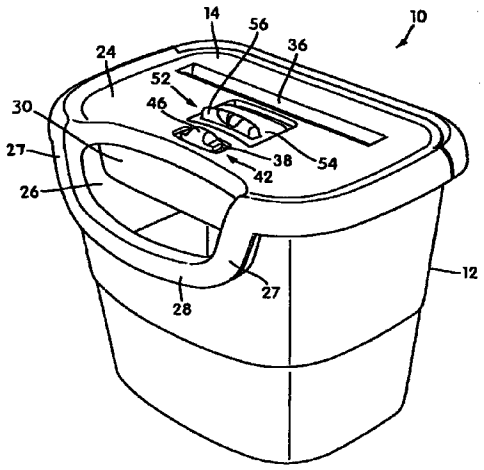
Primary Examiner — Bena Miller

(74) *Attorney, Agent, or Firm* — Pillsbury Winthrop Shaw Pittman LLP

(57) **ABSTRACT**

A shredder is disclosed. The shredder includes a housing having a throat for receiving at least one article to be shredded, and a shredder mechanism received in the housing and including an electrically powered motor and cutter elements. The shredder mechanism enables the at least one article to be shredded to be fed into the cutter elements. The motor is operable to drive the cutter elements so that the cutter elements shred the articles fed therein. The shredder also includes a detector that is configured to detect a thickness of the at least one article being received by the throat, and a controller that is operable to perform a predetermined operation responsive to the detector detecting that the thickness of the at least one article is at least equal to a predetermined maximum thickness.

14 Claims, 9 Drawing Sheets



U.S. PATENT DOCUMENTS

3,764,819	A		10/1973	Muller
3,785,230	A		1/1974	Lokey
3,829,580	A		8/1974	Guetersloh
3,947,734	A		3/1976	Fyler
4,192,467	A		3/1980	Hatanaka
4,352,980	A		10/1982	Hibari
4,489,897	A		12/1984	Turner
4,495,456	A		1/1985	Vercillo et al.
4,497,478	A		2/1985	Reschenhofer
4,683,381	A		7/1987	Dufoug
4,707,704	A		11/1987	Allen
4,757,949	A		7/1988	Horton
4,814,632	A		3/1989	Glaeser
4,842,205	A		6/1989	Araki
4,889,291	A		12/1989	Goldhammer et al.
4,914,721	A		4/1990	Glaeser
5,017,972	A		5/1991	Daughton
5,081,406	A		1/1992	Hughes et al.
5,166,679	A		11/1992	Vranish et al.
5,167,374	A	*	12/1992	Strohmeyer 241/36
5,186,398	A		2/1993	Vigneau, Jr.
5,198,777	A		3/1993	Masuda et al.
5,342,033	A		8/1994	Iwata
5,345,138	A		9/1994	Mukaidono et al.
5,353,468	A		10/1994	Yap
5,397,890	A		3/1995	Schueler et al.
5,409,171	A		4/1995	Stangenberg et al.
5,415,355	A		5/1995	Gollwitzer
5,429,313	A		7/1995	Schwelling
5,436,613	A		7/1995	Ghosh et al.
5,453,644	A		9/1995	Yap
5,494,229	A		2/1996	Rokos
5,662,280	A		9/1997	Nishio et al.
5,743,521	A		4/1998	Munakata et al.
5,772,129	A		6/1998	Nishio et al.
5,775,605	A		7/1998	Tsai
5,823,529	A		10/1998	Mandel
5,850,342	A		12/1998	Nakamura et al.
5,871,162	A		2/1999	Rajewski
5,924,637	A		7/1999	Niederholtmeyer
D412,716	S		8/1999	Kroger
5,942,975	A		8/1999	Sorensen
D414,198	S		9/1999	Iwata
5,988,542	A		11/1999	Henreckson
6,065,696	A		5/2000	Tsai
D426,805	S		6/2000	Iwata
6,079,645	A		6/2000	Henreckson
6,116,528	A		9/2000	Schwelling
6,141,883	A		11/2000	Mitchell et al.
6,265,682	B1		7/2001	Lee
6,376,939	B1		4/2002	Suzuki et al.
6,418,004	B1		7/2002	Mather et al.
6,550,701	B1		4/2003	Chang
6,561,444	B1		5/2003	Yokomine et al.
6,601,787	B1		8/2003	Langenecker
6,655,943	B1		12/2003	Peterson
6,666,959	B2		12/2003	Uzoh et al.
6,676,460	B1		1/2004	Motsenbocker
6,698,640	B2		3/2004	Hakozaki
6,724,324	B1		4/2004	Lambert
6,802,465	B1	*	10/2004	Norcott et al. 241/36
6,813,983	B2		11/2004	Gass et al.
6,826,988	B2		12/2004	Gass
6,857,345	B2		2/2005	Gass
6,877,410	B2		4/2005	Gass et al.
6,880,440	B2		4/2005	Gass et al.
6,920,814	B2		7/2005	Gass et al.
6,979,813	B2		12/2005	Avril
6,983,903	B2		1/2006	Chang
6,997,408	B2		2/2006	Watano
7,025,293	B2		4/2006	Matlin et al.
7,040,559	B2		5/2006	Matlin
7,166,561	B2		1/2007	Allen
7,311,276	B2		12/2007	Matlin et al.
7,490,786	B2		2/2009	Matlin et al.
7,520,452	B2		4/2009	Watano et al.
7,584,545	B2		9/2009	Pan
7,624,938	B2		12/2009	Aries et al.
7,631,822	B2		12/2009	Matlin et al.
7,631,823	B2		12/2009	Matlin et al.
7,631,824	B2		12/2009	Matlin et al.
7,635,102	B2		12/2009	Matlin et al.
7,661,614	B2		2/2010	Matlin et al.
7,663,769	B2		2/2010	Hayashihara et al.
7,712,689	B2		5/2010	Matlin et al.
2002/0017175	A1		2/2002	Gass et al.
2002/0017176	A1		2/2002	Gass et al.
2002/0017178	A1		2/2002	Gass et al.
2002/0017179	A1		2/2002	Gass et al.
2002/0017180	A1		2/2002	Gass et al.
2002/0017181	A1		2/2002	Gass et al.
2002/0017182	A1		2/2002	Gass et al.
2002/0017183	A1		2/2002	Gass
2002/0017184	A1		2/2002	Gass et al.
2002/0017336	A1		2/2002	Gass et al.
2002/0020261	A1		2/2002	Gass et al.
2002/0020262	A1		2/2002	Gass et al.
2002/0020263	A1		2/2002	Gass et al.
2002/0020265	A1		2/2002	Gass et al.
2002/0020271	A1		2/2002	Gass et al.
2002/0056348	A1		5/2002	Gass et al.
2002/0056349	A1		5/2002	Gass et al.
2002/0056350	A1		5/2002	Gass et al.
2002/0059853	A1		5/2002	Gass et al.
2002/0059854	A1		5/2002	Gass et al.
2002/0059855	A1		5/2002	Gass et al.
2002/0066346	A1		6/2002	Gass et al.
2002/0069734	A1		6/2002	Gass et al.
2002/0170399	A1		11/2002	Gass et al.
2002/0170400	A1		11/2002	Gass
2002/0190581	A1		12/2002	Gass et al.
2003/0002942	A1		1/2003	Gass et al.
2003/0005588	A1		1/2003	Gass et al.
2003/0015253	A1		1/2003	Gass et al.
2003/0019341	A1		1/2003	Gass et al.
2003/0020336	A1		1/2003	Gass et al.
2003/0037651	A1		2/2003	Gass et al.
2003/0042342	A1		3/2003	Kroger et al.
2003/0056853	A1		3/2003	Gass et al.
2003/0058121	A1		3/2003	Gass et al.
2003/0090224	A1		5/2003	Gass et al.
2003/0131703	A1		7/2003	Gass et al.
2003/0140749	A1		7/2003	Gass et al.
2003/0196824	A1		10/2003	Gass et al.
2004/0008122	A1		1/2004	Michael
2004/0040426	A1		3/2004	Gass et al.
2004/0069883	A1		4/2004	Watanabe et al.
2004/0159198	A1		8/2004	Peot et al.
2004/0163514	A1		8/2004	Gass et al.
2004/0173430	A1		9/2004	Gass
2004/0194594	A1		10/2004	Dils
2004/0226800	A1		11/2004	Pierga
2005/0039586	A1		2/2005	Gass et al.
2005/0039822	A1		2/2005	Gass et al.
2005/0041359	A1		2/2005	Gass
2005/0066784	A1		3/2005	Gass
2005/0103510	A1		5/2005	Gass et al.
2005/0139051	A1		6/2005	Gass et al.
2005/0139056	A1		6/2005	Gass et al.
2005/0139057	A1		6/2005	Gass et al.
2005/0139058	A1		6/2005	Gass et al.
2005/0139459	A1		6/2005	Gass et al.
2005/0150986	A1		7/2005	Castronovo
2005/0155473	A1		7/2005	Gass
2005/0166736	A1		8/2005	Gass et al.
2006/0016919	A1		1/2006	Castronovo
2006/0054725	A1		3/2006	Matlin
2006/0091247	A1		5/2006	Matlin
2006/0243631	A1		11/2006	Duke
2007/0007373	A1		1/2007	Matlin
2007/0025239	A1		2/2007	Jain et al.
2007/0080252	A1		4/2007	Pierce
2007/0087942	A1		4/2007	Allen
2007/0164135	A1		7/2007	Zhong
2007/0164138	A1		7/2007	Allen
2007/0215728	A1		9/2007	Priester
2007/0221767	A1		9/2007	Matlin et al.

2007/0246582	A1	10/2007	Aries et al.
2008/0093487	A1	4/2008	Lee
2008/0231261	A1	9/2008	Dengler et al.
2009/0025239	A1	1/2009	Pan
2009/0032629	A1	2/2009	Aries et al.
2009/0090797	A1	4/2009	Matlin et al.
2010/0051731	A1	3/2010	Matlin et al.
2010/0084496	A1	4/2010	Matlin et al.
2010/0102153	A1	4/2010	Matlin et al.
2010/0134805	A1	6/2010	Pan
2010/0170967	A1	7/2010	Jensen et al.
2010/0170969	A1	7/2010	Jensen et al.
2010/0176227	A1	7/2010	Davis et al.
2010/0181398	A1	7/2010	Davis et al.
2010/0213296	A1	8/2010	Sued et al.
2010/0213297	A1	8/2010	Sued et al.
2010/0213300	A1	8/2010	Matlin et al.
2010/0243774	A1	9/2010	Hu et al.
2010/0252661	A1	10/2010	Matlin et al.
2010/0252664	A1	10/2010	Matlin et al.
2010/0270404	A1	10/2010	Chen
2010/0282879	A1	11/2010	Chen
2010/0288861	A1	11/2010	Cai et al.
2010/0320297	A1	12/2010	Matlin et al.
2010/0320299	A1	12/2010	Matlin et al.

FOREIGN PATENT DOCUMENTS

DE	8619856.4		10/1988
DE	4121330		1/1993
DE	4207292		1/1993
DE	4237861		5/1994
DE	4437348		4/1996
DE	19835093		2/1999
DE	202004000907		5/2005
DE	102006036136		1/2008
DE	202010001577	U1	11/2010
EP	0268244		11/1987
EP	0562076		9/1992
EP	0524708		1/1997
EP	0792691		9/1997
EP	0818241		1/1998
EP	0856945		1/1998
EP	0855221		7/1998
EP	1177832		2/2002
EP	1195202		4/2002
EP	2180290		7/2008
EP	2022566		2/2009
GB	1199903		7/1970
GB	2171029		8/1986
GB	2209963		6/1989
GB	2440651		2/2008
GB	2442942		4/2008
GB	2451513		2/2009
JP	57-76734		1/1980
JP	57-070445		4/1982
JP	57-070445	U	4/1982
JP	58-223448		12/1983
JP	61-000702		1/1986
JP	63-173342		11/1988
JP	2-277560		11/1990
JP	H2-303550		12/1990
JP	04-157093		5/1992
JP	04-0180852		6/1992
JP	5-96198		4/1993
JP	H05-092144		4/1993
JP	52-11691		8/1993
JP	6-277548		10/1994
JP	7-299377		11/1995
JP	8-108088		4/1996
JP	8-131861		5/1996
JP	08-164343		6/1996
JP	9-38513		2/1997
JP	09-150069		10/1997
JP	9-262491		10/1997
JP	10-048344		2/1998
JP	11-216383		8/1999
JP	11-304942		11/1999
JP	20000346288		12/2000
JP	2002-239405		8/2002
JP	2002239405		8/2002
JP	2004321993		11/2004
WO	2005070553		8/2005
WO	2006019985		2/2006
WO	2006036370		4/2006
WO	2007109753		9/2007
WO	2007122364		11/2007
WO	2007137761		12/2007

OTHER PUBLICATIONS

Examination Report for Australian Patent Application No. 2010100084, mailed Mar. 16, 2010.
Examination Report for Australian Patent Application No. 2010100084, mailed Jun. 10, 2010.
U.S. Appl. No. 60/686,490, filed May 31, 2005, Pierce.
U.S. Appl. No. 60/613,750, filed Sep. 27, 2004, Pierce.
U.S. Appl. No. 60/688,285, filed Jun. 7, 2005, Pierce.
Examination Report for Australian Patent Application No. 2008202504, mailed Mar. 13, 2009.
Office Action for Chinese Patent Application No. 200580034478.5, mailed Apr. 10, 2009.
Notice of Allowance for Russian Patent Application No. 2007108715, dated May 6, 2009.
TI's Digital Signal Controllers Put Brake on SawStop Table Saw, Feb. 9, 2005, pp. 1-3. (printed from www.embeddedstar.com/press/content/2005/2/embedded17827.html).
Examination Report for European Patent Application No. 05784240.3, mailed on Mar. 31, 2008.
Office Action for Canadian Patent Application No. 2,579,137, mailed on May 21, 2009.
International Search Report and Written Opinion for PCT/US2005/028290 dated Nov. 21, 2005.
Invitation to Pay Additional Fees with Partial International Search Report in PCT/US2007/064601, Sep. 12, 2007, 8 pages.
Search Report issued in European Patent Application No. 08102126.3, May 19, 2008, 5 pages.
Partial International Search Report issued with Invitation to Pay Additional Fees issued in PCT/US2008/078458, Jan. 26, 2009, 2 pages.
Search Report issued in European patent application No. 08170857.0, Feb. 10, 2009, 6 pages.
Notification of Transmittal of International Search Report, Search Report and Written Opinion of the International Searching Authority for PCT/US2008/078458, mailed Mar. 30, 2009, 21 pages.
Notification of Transmittal of International Search Report, Search Report and Written Opinion of the International Searching Authority for PCT/2007/064601, mailed Feb. 8, 2008, 21 pages.
International Preliminary Report on Patentability for PCT/US2005/028290, mailed Oct. 22, 2008.
International Preliminary Report on Patentability for PCT/US2007/064601, mailed Sep. 23, 2008.
Examination Report for European Patent Application No. 08102126.3, mailed Mar. 4, 2009.
Examination Report for Australian Patent Application No. 2005285398, mailed Feb. 22, 2008.
Notice of Acceptance for Australian Patent Application No. 2005285398, mailed Apr. 15, 2008.
Examination Report for Australian Patent Application No. 2008100182, mailed Jul. 7, 2008.
International Search Report for PCT/US2006/000010 mailed May 11, 2006.
International Preliminary Report on Patentability for PCT/US2006/000010 mailed Dec. 19, 2006.
Acco Rexel, Mainstream 1050/2150/2250/3150/3250 and 3350, 115V Machines Illustrated Parts Lists and Services Instructions, Mar. 25, 2002, Issue No. and 4.
Acco Rexel, Deckside and Office 115V Machines Illustrated Parts Lists and Service Instructions, Aug. 18, 1999.
Acco Rexel, Deckside and Office 230V Machines Illustrated Parts Lists and Service Instructions, Aug. 1, 2000.
Complaint for Declaratory Judgment filed on Nov. 15, 2010 by Royal Applicance Manufacturing Co., d/b/a/ TTI Floor Care North America and Techtronic Industries Co. Ltd. against Fellowes, Inc.
English Translation of Japanese Patent Application Publication No. 9-38513, published on Feb. 10, 1997.

* cited by examiner

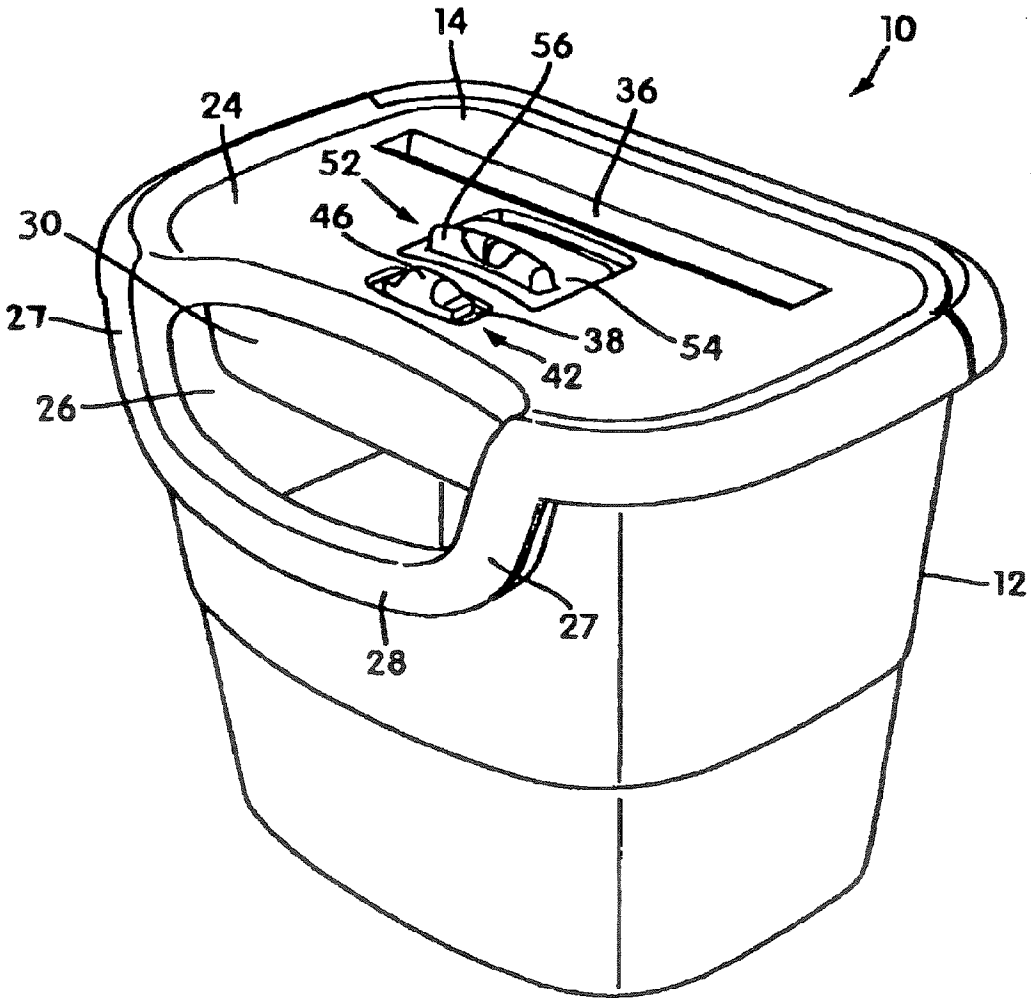


FIG. 1

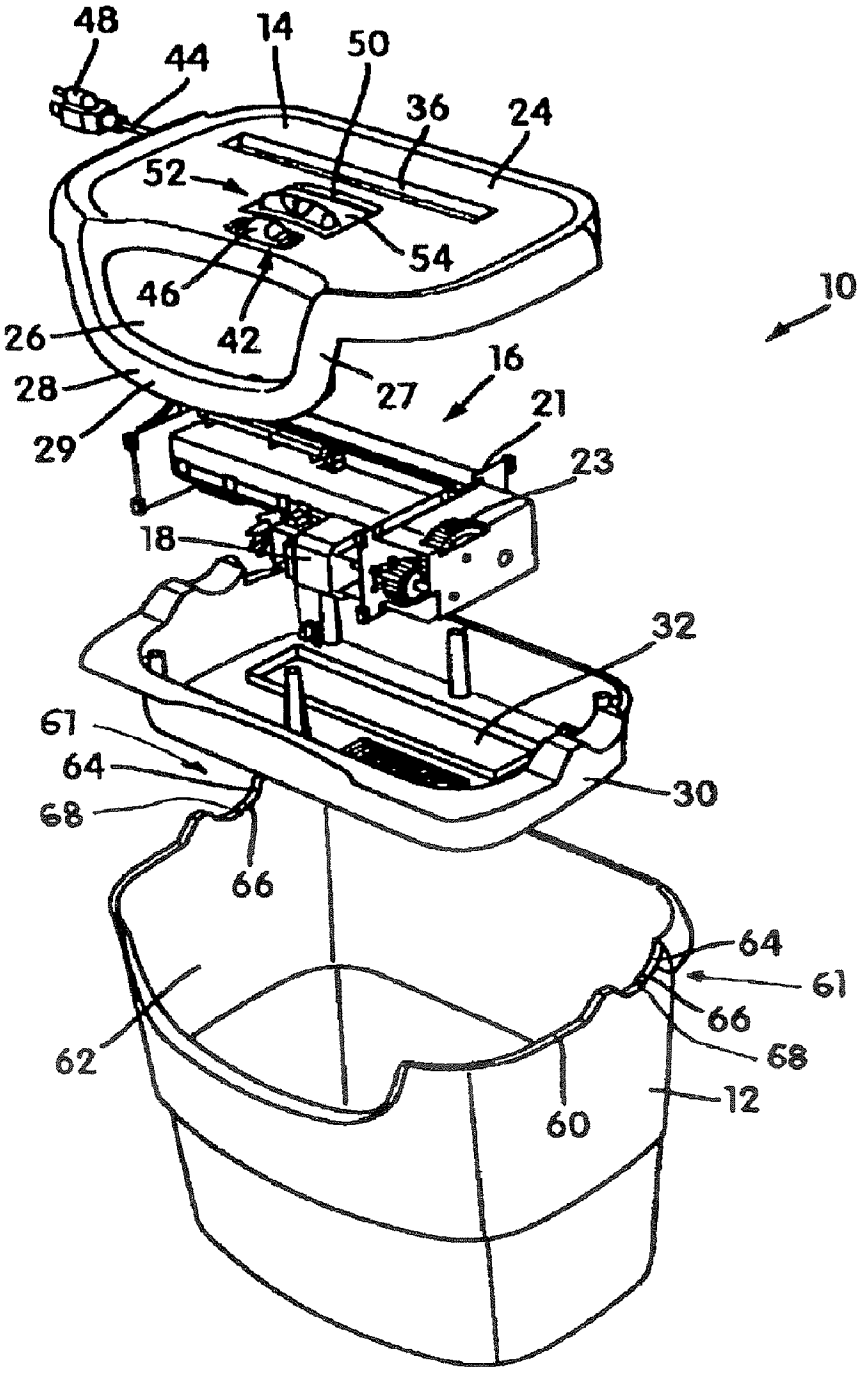

48
44
14
50
36
24
52
54
46
42
10
26
16
28
27
21
29
23
18
32
61
64
68
30
66
64
61
66
62
68
60
12

FIG. 2

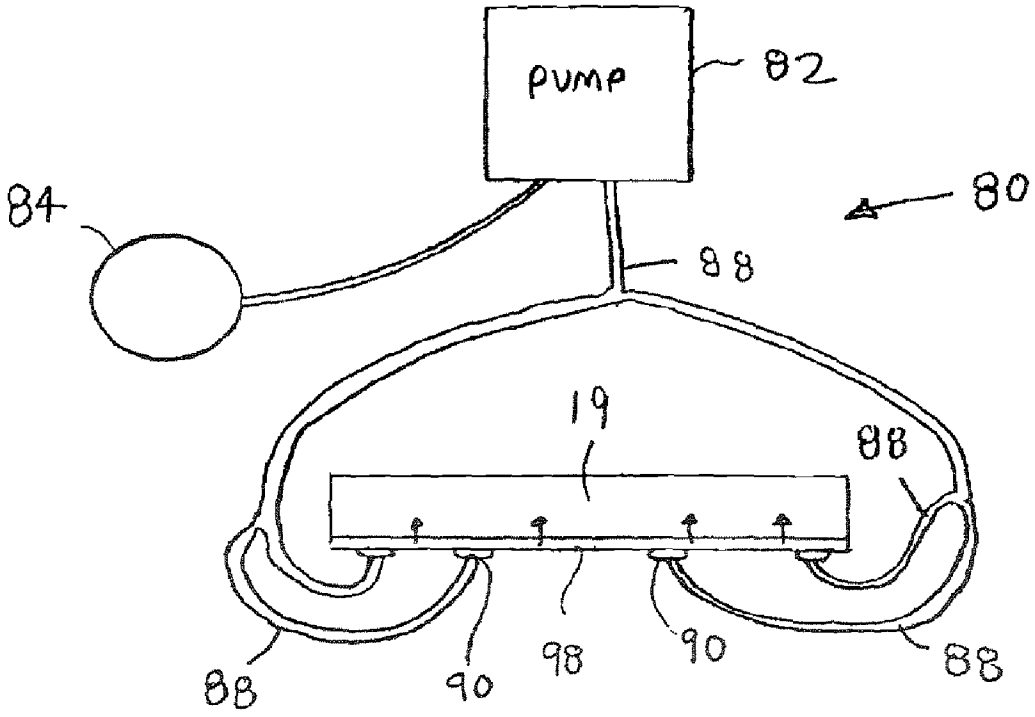


FIG. 3

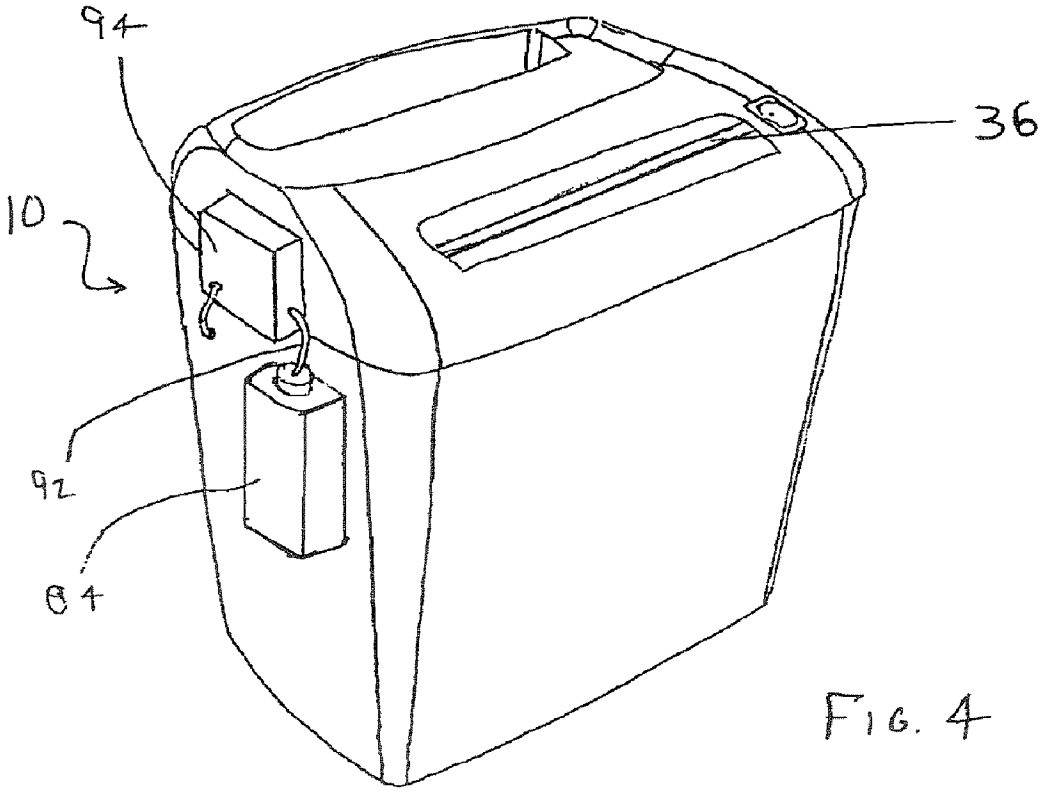


FIG. 4

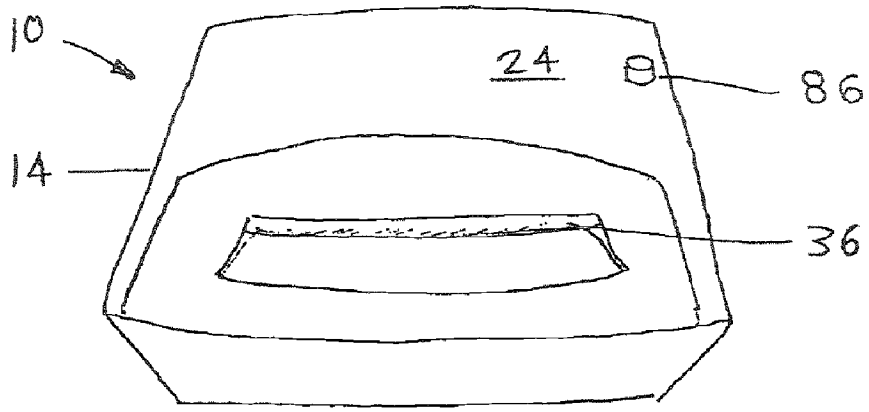


FIG. 5

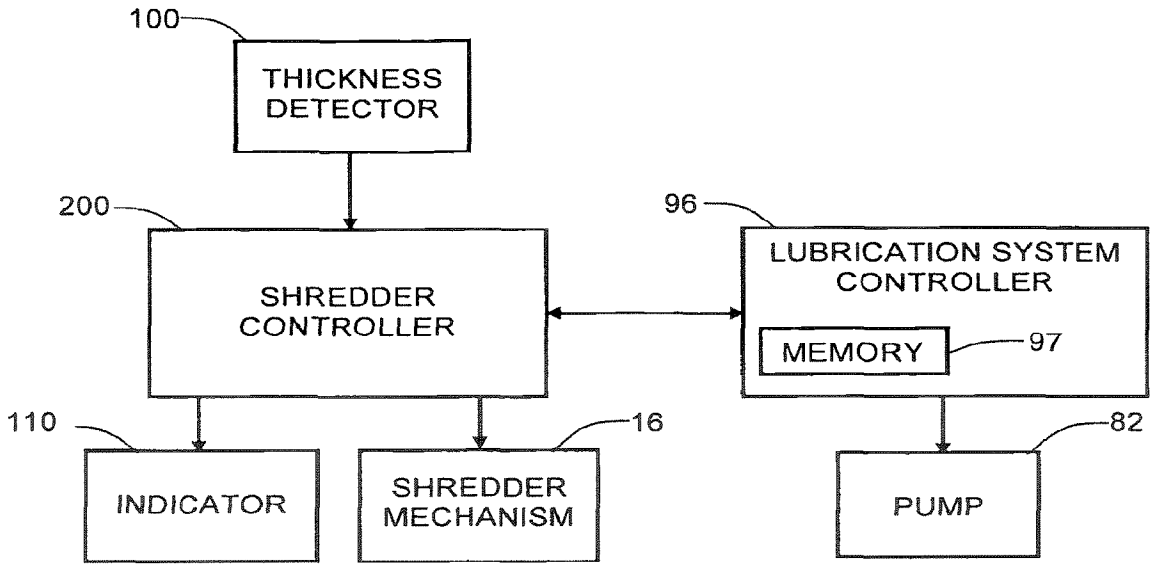

100
THICKNESS DETECTOR
200
SHREDDER CONTROLLER
96
LUBRICATION SYSTEM CONTROLLER
MEMORY
97
110
INDICATOR
16
SHREDDER MECHANISM
82
PUMP

FIG. 6

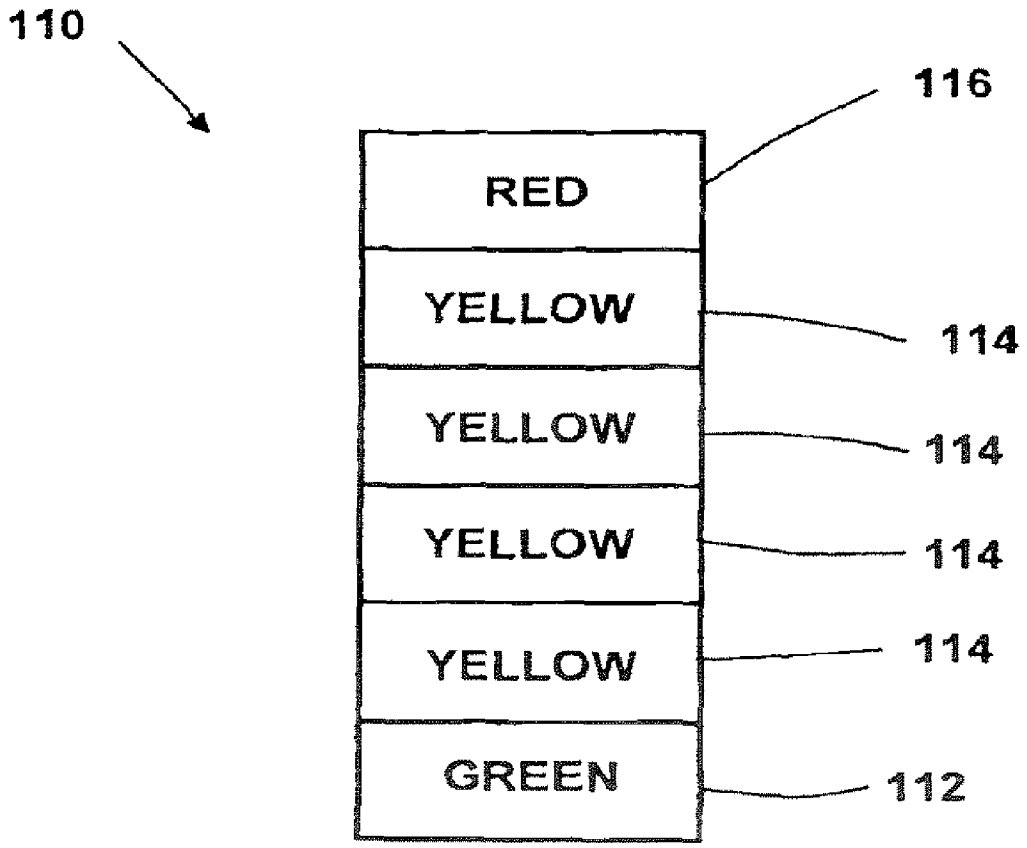

110
116
RED
YELLOW
114
YELLOW
114
YELLOW
114
YELLOW
114
GREEN
112

FIG. 7

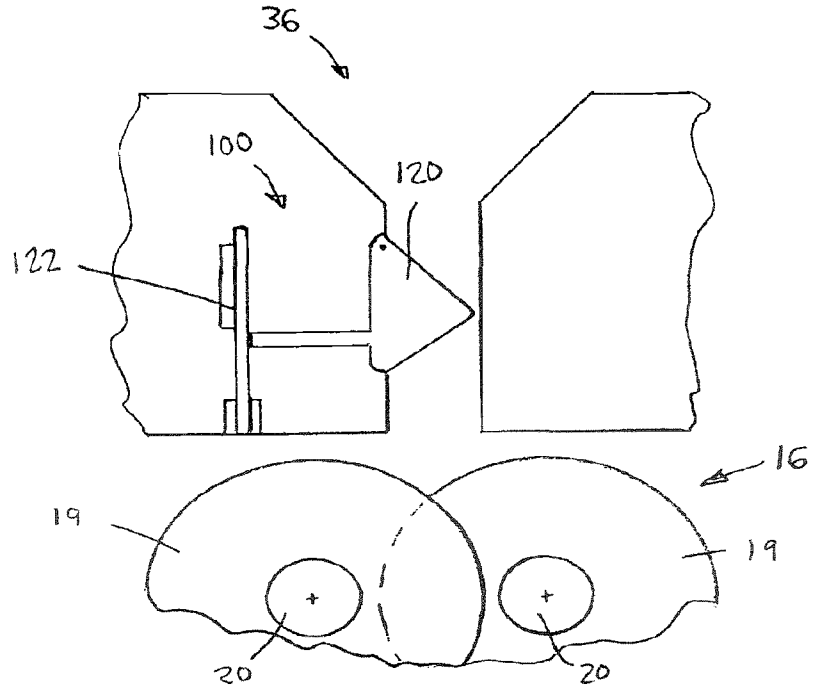

36
100
120
122
16
19
19
20
20

FIG. 8

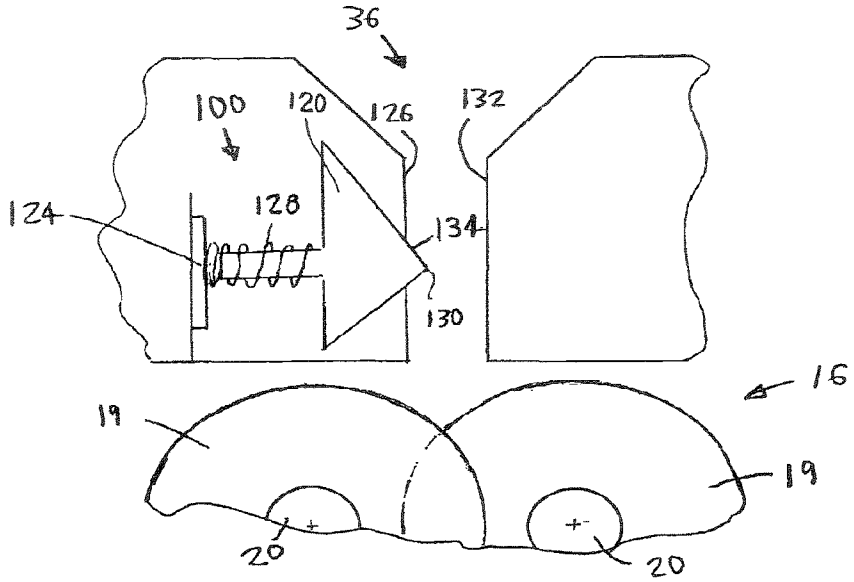

36
100
120
126
132
124
128
134
130
16
19
19
20
20

FIG. 9

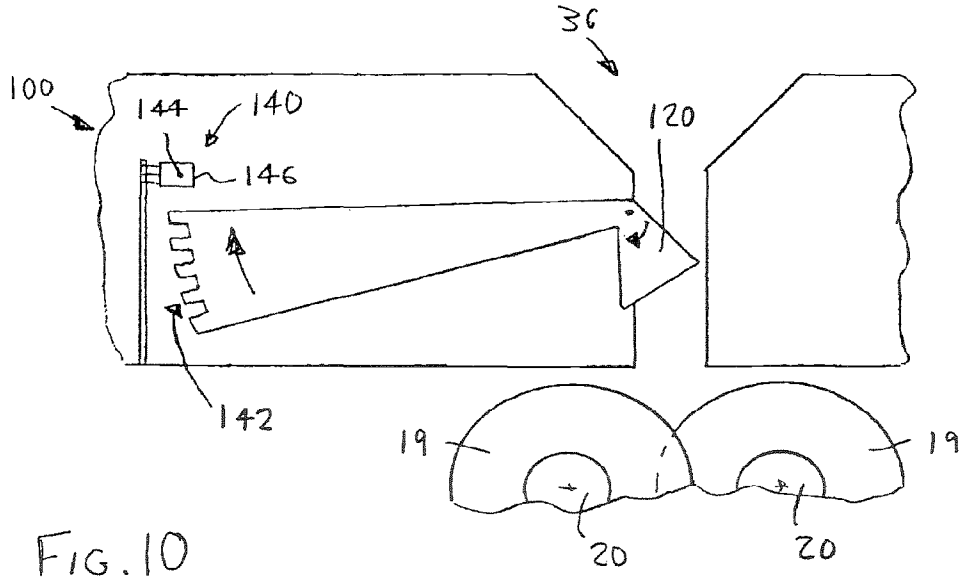


FIG. 10

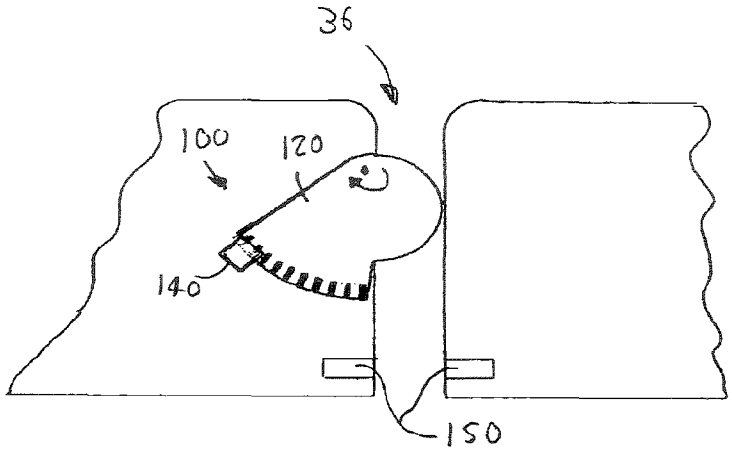


FIG 11

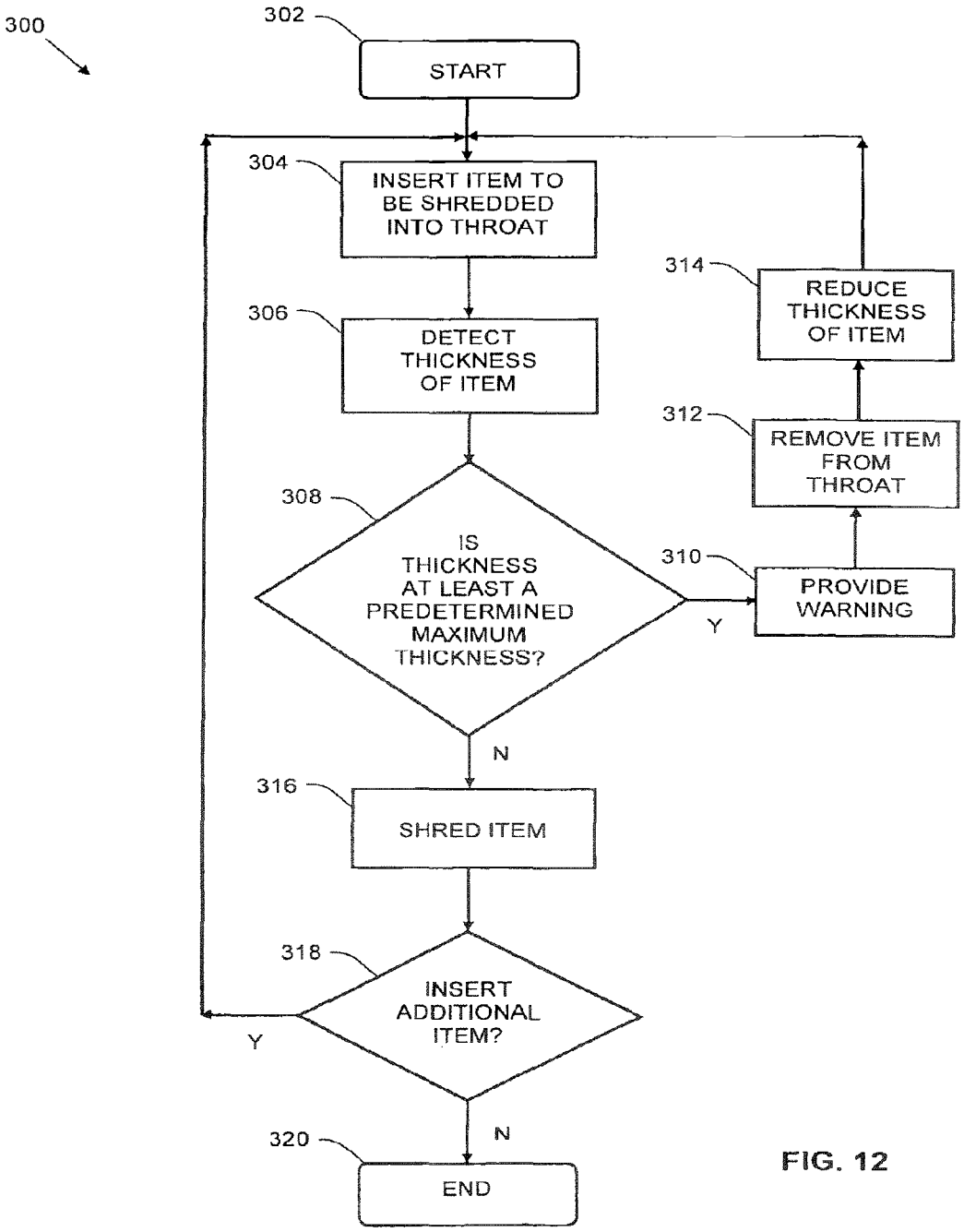

300
302
START
304
INSERT ITEM TO BE SHREDDED INTO THROAT
306
DETECT THICKNESS OF ITEM
308
IS THICKNESS AT LEAST A PREDETERMINED MAXIMUM THICKNESS?
Y
310
PROVIDE WARNING
312
REMOVE ITEM FROM THROAT
314
REDUCE THICKNESS OF ITEM
N
316
SHRED ITEM
318
INSERT ADDITIONAL ITEM?
Y
N
320
END

FIG. 12

SHREDDER WITH THICKNESS DETECTOR

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 11/444,491, filed on Jun. 1, 2006, which is a continuation-in-part of U.S. patent application Ser. No. 11/177,480, filed on Jul. 11, 2005 and currently pending, which is a continuation-in-part of U.S. patent application Ser. No. 10/937,304, filed on Sep. 10, 2004 and currently pending, the entire contents of which are both incorporated herein by reference. Application Ser. No. 11/177,480, filed on Jul. 11, 2005 and currently pending is also a continuation-in-part of U.S. patent application Ser. No. 11/385,864, filed on Mar. 22, 2006 and currently pending, the entire content of which is incorporated herein by reference. Priority is claimed to each of these.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to shredders for destroying articles, such as documents, compact discs, etc.

2. Description of Related Art

Shredders are well known devices for destroying articles, such as documents, compact discs ("CDs"), expired credit cards, etc. Typically, users purchase shredders to destroy sensitive articles, such as credit card statements with account information, documents containing company trade secrets, etc.

A common type of shredder has a shredder mechanism contained within a housing that is removably mounted atop a container. The shredder mechanism typically has a series of cutter elements that shred articles fed therein and discharge the shredded articles downwardly into the container. The shredder typically has a stated capacity, such as the number of sheets of paper (typically of 20 lb. weight) that may be shredded at one time; however, the feed throat of a typical shredder can receive more sheets of paper than the stated capacity. A common frustration of users of shredders is to feed too many papers into the feed throat, only to have the shredder jam after it has started to shred the papers. To free the shredder of the papers, the user typically reverses the direction of rotation of the cutter elements via a switch until the papers become free.

In addition, shredders that are subjected to a lot of use should have periodic maintenance done to them. For example, the cutter elements may become dull over time. It has been found that lubricating the cutter elements may improve the performance of cutter elements, particularly if the shredder is used constantly over a long period of time.

The present invention endeavors to provide various improvements over known shredders.

BRIEF SUMMARY OF THE INVENTION

It is an aspect of the invention to provide a shredder that does not jam as a result of too many papers, or an article that is too thick, being fed into the shredder.

In an embodiment, a shredder is provided. The shredder includes a housing having a throat for receiving at least one article to be shredded, and a shredder mechanism received in the housing. The shredder mechanism includes an electrically powered motor and cutter elements. The shredder mechanism enables the at least one article to be shredded to be fed into the cutter elements. The motor is operable to drive the cutter elements so that the cutter elements shred the articles fed therein. The shredder also includes a detector that is configured to detect a thickness of the at least one article being received by the throat, and a controller that is operable to perform a predetermined operation responsive to the detector detecting that the thickness of the at least one article is at least equal to a predetermined maximum thickness.

In an embodiment, a method for operating a shredder is provided. The method includes detecting a thickness of at least one article being inserted into a throat of the shredder, determining if the thickness of the at least one article is greater than a predetermined maximum thickness, and performing a predetermined operation if the detected thickness is at least equal to the predetermined maximum thickness.

It is also an aspect of the present invention to provide a shredder that automatically conducts self-maintenance after a predetermined amount of use.

In an embodiment, a shredder that includes a housing that has a throat for receiving at least one article to be shredded, and a shredder mechanism that is received in the housing is provided. The shredder mechanism includes an electrically powered motor and cutter elements. The shredder mechanism enables the at least one article to be shredded to be fed into the cutter elements and the motor being operable to drive the cutter elements so that the cutter elements shred the articles fed therein. The shredder also includes a lubrication system configured to lubricate the cutter elements, and a detector configured to detect a thickness of the at least one article being received by the throat. The shredder further includes a controller that is operable to store an accumulation of thicknesses detected by the detector over time and to provide a signal to the lubrication system to lubricate the cutter elements when the accumulation is at least equal to a predetermined total thickness.

In an embodiment, a shredder is provided. The shredder includes a housing having a throat for receiving at least one article to be shredded, and a shredder mechanism that is received in the housing. The shredder mechanism includes an electrically powered motor and cutter elements. The shredder mechanism enables the at least one article to be shredded to be fed into the cutter elements. The motor is operable to drive the cutter elements so that the cutter elements shred the articles fed therein. The shredder also includes a controller that includes a memory. The controller is operable to store information in the memory related to an amount of use of the shredder, and to alert a user of the shredder when the shredder is due for a maintenance operation, based on the amount of use of the shredder.

Other aspects, features, and advantages of the present invention will become apparent from the following detailed description, the accompanying drawings, and the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a shredder constructed in accordance with an embodiment of the present invention;

FIG. **2** is an exploded perspective view of the shredder of FIG. **1**;

FIG. **3** is a schematic illustration of an oiling mechanism in accordance with an embodiment of the present invention;

FIG. **4** is a perspective view of a shredder having an oiling mechanism in accordance with an embodiment of the present invention;

FIG. **5** is a perspective view of a shredder having an oiling mechanism in accordance with an embodiment of the present invention;

FIG. **6** is a schematic of interaction between a controller and other parts of the shredder;

FIG. **7** is a schematic of an embodiment of an indicator located on the shredder;

FIG. **8** is a schematic of an embodiment of a detector configured to detect a thickness of a article to be shredded by the shredder;

FIG. **9** is a schematic of another embodiment of a detector configured to detect a thickness of a article to be shredded by the shredder;

FIG. **10** is a schematic of another embodiment of a detector configured to detect a thickness of a article to be shredded by the shredder;

FIG. **11** is a schematic of another embodiment of the detector of FIG. **10**; and

FIG. **12** is a flow diagram of an embodiment of a method for shredding an article.

DETAILED DESCRIPTION OF THE INVENTION

FIGS. **1** and **2** illustrate a shredder constructed in accordance with an embodiment of the present invention. The shredder is generally indicated at **10**. In the illustrated embodiment, the shredder **10** sits atop a waste container, generally indicated at **12**, which is formed of molded plastic or any other material. The shredder **10** illustrated is designed specifically for use with the container **12**, as the shredder housing **14** sits on the upper periphery of the waste container **12** in a nested relation. However, the shredder **10** may also be designed so as to sit atop a wide variety of standard waste containers, and the shredder **10** would not be sold with the container. Likewise, the shredder **10** could be part of a large freestanding housing, and a waste container would be enclosed in the housing. An access door would provide for access to and removal of the container. Generally speaking, the shredder **10** may have any suitable construction or configuration and the illustrated embodiment is not intended to be limiting in any way. In addition, the term "shredder" is not intended to be limited to devices that literally "shred" documents and articles, but is instead intended to cover any device that destroys documents and articles in a manner that leaves each document or article illegible and/or useless.

As shown in FIG. **2**, in an embodiment, the shredder **10** includes a shredder mechanism **16** that includes an electrically powered motor **18** and a plurality of cutter elements **19**. "Shredder mechanism" is a generic structural term to denote a device that destroys articles using at least one cutter element. Such destroying may be done in any particular way. For example, the shredder mechanism may include at least one cutter element that is configured to punch a plurality of holes in the document or article in a manner that destroys the document or article. In the illustrated embodiment, the cutter elements **19** are generally mounted on a pair of parallel rotating shafts **20**. The motor **18** operates using electrical power to rotatably drive the shafts and the cutter elements through a conventional transmission **23** so that the cutter elements shred articles fed therein. The shredder mechanism **16** may also include a sub-frame **21** for mounting the shafts, the motor **18**, and the transmission **23**. The operation and construction of such a shredder mechanism **16** are well known and need not be described herein in detail. Generally, any suitable shredder mechanism **16** known in the art or developed hereafter may be used.

The shredder **10** also includes the shredder housing **14**, mentioned above. The shredder housing **14** includes top wall **24** that sits atop the container **12**. The top wall **24** is molded from plastic and an opening **26** is located at a front portion thereof. The opening **26** is formed in part by a downwardly depending generally U-shaped member **28**. The U-shaped member **28** has a pair of spaced apart connector portions **27** on opposing sides thereof and a hand grip portion **28** extending between the connector portions **27** in spaced apart relation from the housing **14**. The opening **26** allows waste to be discarded into the container **12** without being passed through the shredder mechanism **16**, and the member **28** may act as a handle for carrying the shredder **10** separate from the container **12**. As an optional feature, this opening **26** may be provided with a lid, such as a pivoting lid, that opens and closes the opening **26**. However, this opening in general is optional and may be omitted entirely. Moreover, the shredder housing **14** and its top wall **24** may have any suitable construction or configuration.

The shredder housing **14** also includes a bottom receptacle **30** having a bottom wall, four side walls and an open top. The shredder mechanism **16** is received therein, and the receptacle **30** is affixed to the underside of the top wall **24** by fasteners. The receptacle **30** has an opening **32** in its bottom wall through which the shredder mechanism **16** discharges shredded articles into the container **12**.

The top wall **24** has a generally laterally extending opening, which is often referred to as a throat **36**, extending generally parallel and above the cutter elements. The throat **36** enables the articles being shredded to be fed into the cutter elements. As can be appreciated, the throat **36** is relatively narrow, which is desirable for preventing overly thick items, such as large stacks of documents, from being fed into cutter elements, which could lead to jamming The throat **36** may have any configuration. The term feed-aperture may also be used to refer to the throat, which is the entire space through which materials are fed leading into the cutter elements **19**.

The top wall **24** also has a switch recess **38** with an opening therethrough. An on/off switch **42** includes a switch module (not shown) mounted to the top wall **24** underneath the recess **38** by fasteners, and a manually engageable portion **46** that moves laterally within the recess **38**. The switch module has a movable element (not shown) that connects to the manually engageable portion **46** through the opening. This enables movement of the manually engageable portion **46** to move the switch module between its states.

In the illustrated embodiment, the switch module connects the motor **18** to the power supply. Typically, the power supply will be a standard power cord **44** with a plug **48** on its end that plugs into a standard AC outlet. The switch **42** is movable between an on position and an off position by moving the portion **46** laterally within the recess **38**. In the on position, contacts in the switch module are closed by movement of the manually engageable portion **46** and the movable element to enable a delivery of electrical power to the motor **18**. In the off position, contacts in the switch module are opened to disable the delivery of electric power to the motor **18**.

As an option, the switch **42** may also have a reverse position wherein contacts are closed to enable delivery of electrical power to operate the motor **18** in a reverse manner. This would be done by using a reversible motor and applying a current that is of a reverse polarity relative to the on position. The capability to operate the motor **18** in a reversing manner is desirable to move the cutter elements in a reversing direction for clearing jams. In the illustrated embodiment, in the off position the manually engageable portion **46** and the movable element would be located generally in the center of the recess **38**, and the on and reverse positions would be on opposing lateral sides of the off position.

Generally, the construction and operation of the switch **42** for controlling the motor **42** are well known and any construction for such a switch **42** may be used.

In the illustrated embodiment, the top cover **24** also includes another recess **50** associated with an optional switch lock **52**. The switch lock **52** includes a manually engageable portion **54** that is movable by a user's hand and a locking portion (not shown). The manually engageable portion **54** is seated in the recess **50** and the locking portion is located beneath the top wall **24**. The locking portion is integrally formed as a plastic piece with the manually engageable portion **54** and extends beneath the top wall **24** via an opening formed in the recess **50**.

The switch lock **52** causes the switch **42** to move from either its on position or reverse position to its off position by a camming action as the switch lock **52** is moved from a releasing position to a locking position. In the releasing position, the locking portion is disengaged from the movable element of the switch **42**, thus enabling the switch **42** to be moved between its on, off, and reverse positions. In the locking position, the movable element of the switch **42** is restrained in its off position against movement to either its on or reverse position by the locking portion of the switch lock **52**.

Preferably, but not necessarily, the manually engageable portion **54** of the switch lock **52** has an upwardly extending projection **56** for facilitating movement of the switch lock **52** between the locking and releasing positions.

One advantage of the switch lock **52** is that, by holding the switch **42** in the off position, to activate the shredder mechanism **16** the switch lock **52** must first be moved to its releasing position, and then the switch **42** is moved to its on or reverse position. This reduces the likelihood of the shredder mechanism **16** being activated unintentionally. Reference may be made to U.S. Patent Application Publication No. 2005-0218250 A1, which is incorporated herein by reference, for further details of the switch lock **52**. This switch lock is an entirely optional feature and may be omitted.

In the illustrated embodiment, the shredder housing **14** is designed specifically for use with the container **12** and it is intended to sell them together. The upper peripheral edge **60** of the container **12** defines an upwardly facing opening **62**, and provides a seat **61** on which the shredder **10** is removably mounted. The seat **61** includes a pair of pivot guides **64** provided on opposing lateral sides thereof. The pivot guides **64** include upwardly facing recesses **66** that are defined by walls extending laterally outwardly from the upper edge **60** of the container **12**. The walls defining the recesses **66** are molded integrally from plastic with the container **12**, but may be provided as separate structures and formed from any other material. At the bottom of each recess **66** is provided a step down or ledge providing a generally vertical engagement surface **68**. This step down or ledge is created by two sections of the recesses **66** being provided with different radii. Reference may be made to U.S. Pat. No. 7,025,293, which is incorporated herein by reference, for further details of the pivotal mounting. This pivotal mounting is entirely optional and may be omitted.

As schematically illustrated in FIG. **3**, in order to lubricate the cutter elements **19** of the shredder **10**, a lubrication system **80** may be included for providing lubrication at the cutter elements **19**. The system includes a pump **82**, that draws lubricating fluid, such as oil, from a reservoir **84**. In a typical application, the reservoir **84** will have a fill neck **86** that extends through the top wall **24** of the shredder housing **14** to allow for easy access for refilling the reservoir (see FIG. **5**).

The pump **82** communicates through a series of conduits **88** to one or more nozzles **90** that are positioned proximate the cutter elements **19**. In one embodiment, the nozzles can be positioned such that oil forced through the nozzles is dispersed as sprayed droplets in the throat of the shredder **10**. In another embodiment, the oil is dispersed in back of the throat of the shredder **10**. Generally, the nozzles have openings small relative to the conduits, thereby creating a high speed flow at the nozzle, allowing the oil to be expelled at a predictable rate and pattern.

As shown in FIG. **4**, a system in accordance with an embodiment of the present invention may be a retrofit device. In this embodiment, the reservoir **84** is mounted to an outside surface of the shredder **10**. It is connected via a conduit **92** to the main unit **94**. The main unit **94** may include a power supply (not shown) and the pump **82** (not shown in FIG. **4**). In any embodiment, the reservoir **84** may be designed to be removed and replaced, rather than re-filled.

An alternate embodiment includes the system **80** built into the housing of the shredder **10**. In this embodiment, shown in FIG. **5**, the fill neck **86** can be designed to extend through the top wall **24** of the shredder housing **14**. Operation of the system **80** does not depend on whether it is retrofit or built-in.

In operation, a controller **96** (shown in FIG. **6**) for the lubrication system **80** is programmed with instructions for determining when to lubricate the cutter elements **19**. The controller processes the instructions and subsequently applies them by activating the pump **82** to cause fluid from the reservoir to be delivered to the nozzles **90** under pressure. The nozzles are positioned and arranged to spray the pressurized lubricating oil to the cutter elements **19**. In general, the oil will be dispersed in a predetermined pattern directly onto the cutter elements and/or the strippers. In a particular arrangement, it may be useful to array the nozzles below the cutter elements so that lubrication is sprayed from below. In an alternate embodiment, the oil is sprayed onto an intermediate surface **98** (shown in FIG. **3**) and allowed to drip from there onto the cutter elements **19** and the strippers (which are generally located on the outward or post-cutting side of the cutting mechanism and include a serrated member or a comb type member having teeth that protrude into the spaces between the individual cutting disks). The illustrated embodiments of the lubrication system **80** are not intended to be limiting in any way. Reference may be made to U.S. patent application Ser. No. 11/385,864, which is hereby incorporated by reference, for further details of an oiling mechanism. The lubrication system **80** is an optional feature of the shredder **10**.

In an embodiment of the invention, the shredder **10** includes a thickness detector **100** to detect overly thick stacks of documents or other articles that could jam the shredder mechanism **16**, and communicate such detection to a controller **200**, as shown in FIG. **6**. Upon such detection, the controller **200** may communicate with an indicator **110** (also referred to as a maximum thickness indicator or maximum thickness indicating means) that provides a warning signal to the user, such as an audible signal and/or a visual signal. Examples of audible signals include, but are not limited to beeping, bussing, and/or any other type of signal that will alert the user that the stack of documents or other article that is about to be shredded is above a predetermined maximum thickness and may cause the shredder mechanism **16** to jam. This gives the user the opportunity to reduce the thickness of the stack of documents or reconsider forcing the thick article through the shredder, knowing that any such forcing may jam and/or damage the shredder.

A visual signal may be provided in the form of a red warning light, which may be emitted from an LED. It is also contemplated that a green light may also be provided to indicate that the shredder **10** is ready to operate. In an embodiment, the indicator **110** is a progressive indication system that

includes a series of indicators in the form of lights to indicate the thickness of the stack of documents or other article relative to the capacity of the shredder is provided, as illustrated in FIG. **7**. As illustrated, the progressive indication system includes a green light **112**, a plurality of yellow lights **114**, and a red light **116**. The green light **112** indicates that the detected thickness of the item (e.g. a single paper, a stack of papers, a compact disc, a credit card, etc.) that has been placed in the throat **36** of the shredder **10** is below a first predetermined thickness and well within the capacity of the shredder. The yellow lights **114** provide a progressive indication of the thickness of the item. The first yellow light **114**, located next to the green light **112**, would be triggered when the detected thickness is at or above the first predetermined thickness, but below a second predetermined thickness that triggers the red light **116**. If there is more than one yellow light **114**, each additional yellow light **114** may correspond to thicknesses at or above a corresponding number of predetermined thicknesses between the first and second predetermined thicknesses. The yellow lights **114** may be used to train the user into getting a feel for how many documents should be shredded at one time. The red light **116** indicates that the detected thickness is at or above the second predetermined thickness, which may be the same as the predetermined maximum thickness, thereby warning the user that this thickness has been reached.

The sequence of lights may be varied and their usage may vary. For example, they may be arranged linearly in a sequence as shown, or in other configurations (e.g. in a partial circle so that they appear like a fuel gauge or speedometer. Also, for example, the yellow light(s) **114** may be lit only for thickness(es) close to (i.e., within 25% of) the predetermined maximum thickness, which triggers the red light **116**. This is a useful sequence because of most people's familiarity with traffic lights. Likewise, a plurality of green lights (or any other color) could be used to progressively indicate the detected thickness within a range. Each light would be activated upon the detected thickness being equal to or greater than a corresponding predetermined thickness. A red (or other color) light may be used at the end of the sequence of lights to emphasize that the predetermined maximum thickness has been reached or exceeded (or other ways of getting the user's attention may be used, such as emitting an audible signal, flashing all of the lights in the sequence, etc.). These alert features may be used in lieu of or in conjunction with cutting off power to the shredder mechanism upon detecting that the predetermined maximum thickness has been reached or exceeded.

Similarly, the aforementioned indicators of the progressive indicator system may be in the form of audible signals, rather than visual signals or lights. For example, like the yellow lights described above, audible signals may be used to provide a progressive indication of the thickness of the item. The audible signals may vary by number, frequency, pitch, and/or volume in such a way that provides the user with an indication of how close the detected thickness of the article is to the predetermined maximum thickness. For example, no signal or a single "beep" may be provided when the detected thickness is well below the predetermined maximum thickness, and a series of "beeps" that increase in number (e.g. more "beeps" the closer the detection is to the predetermined maximum thickness) and/or frequency (e.g. less time between beeps the closer the detection is to the predetermined maximum thickness) as the detected thickness approaches the predetermined maximum thickness may be provided. If the detected thickness is equal to or exceeds the predetermined maximum thickness, the series of "beeps" may be continuous, thereby indicating to the user that such a threshold has been met and that the thickness of the article to be shredded should be reduced.

The visual and audible signals may be used together in a single device. Also, other ways of indicating progressive thicknesses of the items inserted in the throat **36** may be used. For example, an LCD screen with a bar graph that increases as the detected thickness increases may be used. Also, a "fuel gauge," i.e., a dial with a pivoting needle moving progressively between zero and a maximum desired thickness, may also be used. As discussed above, with an audible signal, the number or frequency of the intermittent audible noises may increase along with the detected thickness. The invention is not limited to the indicators described herein, and other progressive (i.e., corresponding to multiple predetermined thickness levels) or binary (i.e., corresponding to a single predetermined thickness) indicators may be used.

The aforementioned predetermined thicknesses may be determined as follows. First, because the actual maximum thickness that the shredder mechanism may handle will depend on the material that makes up the item to be shredded, the maximum thickness may correspond to the thickness of the toughest article expected to be inserted into the shredder, such as a compact disc, which is made from polycarbonate. If it is known that the shredder mechanism may only be able to handle one compact disc at a time, the predetermined maximum thickness may be set to the standard thickness of a compact disc (i.e., 1.2 mm). It is estimated that such a thickness would also correspond to about 12 sheets of 20 lb. paper. Second, a margin for error may also be factored in. For example in the example given, the predetermined maximum thickness may be set to a higher thickness, such as to 1.5 mm, which would allow for approximately an additional 3 sheets of paper to be safely inserted into the shredder (but not an additional compact disc). Of course, these examples are not intended to be limiting in any way.

For shredders that include separate throats for receiving sheets of paper and compact discs and/or credit cards, a detector **100** may be provided to each of the throats and configured for different predetermined maximum thicknesses. For example, the same shredder mechanism may be able to handle one compact disc and 18 sheets of 20 lb. paper. Accordingly, the predetermined maximum thickness associated with the detector associated with the throat that is specifically designed to receive compact discs may be set to about 1.5 mm (0.3 mm above the standard thickness of a compact disc), while the predetermined maximum thickness associated with the detector associated with the throat that is specifically designed to receive sheets of paper may be set to about 1.8 mm. Of course, these examples are not intended to be limiting in any way and are only given to illustrate features of embodiments of the invention.

Similarly, a selector switch may optionally be provided on the shredder to allow the user to indicate what type of material is about to be shredded, and, hence the appropriate predetermined maximum thickness for the detector. A given shredder mechanism may be able to handle different maximum thicknesses for different types of materials, and the use of this selector switch allows the controller to use a different predetermined thickness for the material selected. For example, there may be a setting for "paper," "compact discs," and/or "credit cards," as these materials are known to have different cutting characteristics and are popular items to shred for security reasons. Again, based on the capacity of the shredder mechanism, the appropriate predetermined maximum thicknesses may be set based on the known thicknesses of the items to be shredded, whether it is the thickness of a single compact

disc or credit card, or the thickness of a predetermined number of sheets of paper of a known weight, such as 20 lb. The selector switch is an optional feature, and the description thereof should not be considered to be limiting in any way.

Returning to FIG. **6**, in addition to the indicator **110** discussed above, the detector **100** may also be in communication with the motor **18** that powers the shredder mechanism **16** via the controller **200**. Specifically, the controller **200** may control whether power is provided to the motor **18** so that the shafts **20** may rotate the cutter elements **19** and shred the item. This way, if the thickness of the item to be shredded is detected to be greater than the capacity of the shredder mechanism **16**, power will not be provided to the shredder mechanism **16**, thereby making the shredder **10** temporarily inoperable. This not only protects the motor **18** from overload, it also provides an additional safety feature so that items that should not be placed in the shredder **10** are not able to pass through the shredder mechanism **16**, even though they may fit in the throat **36** of the shredder **10**.

FIG. **8-11** show different embodiments of the detector **100** that may be used to detect the thickness of an article (e.g. a compact disc, credit card, stack of papers, etc.) that is placed in the throat **36** of the shredder. As shown in FIG. **8**, the detector **100** may include a contact member **120** that is mounted so that it extends into the throat **36** at one side thereof. The contact member **120** may be pivotally mounted or it may be mounted within a slot so that it translates relative to the throat **36**. The contact member **120** is mounted so that as the item to be shredded is inserted into the throat **36**, the item engages the contact member **120** and causes the contact member **120** to be pushed out of the way of the item. As shown in FIG. **8**, a strain gauge **122** is located on a side of the contact member **120** that is opposite the throat **36**. The strain gauge **122** is positioned so that it engages the contact member **120** and is able to measure the displacement of the contact member **120** relative to the throat **36**. Other displacement sensors may be used. The greater the displacement, the thicker the item being inserted into the throat **36**. The strain gauge **122** communicates this measurement to the controller **200** and the controller **200** determines whether the displacement measured by the strain gauge **122**, and hence thickness of the item, is greater than the predetermined maximum thickness, thereby indicating that the item that is being fed into the throat of the shredder **10** will cause the shredder mechanism **16** to jam. If the detected thickness is greater than the predetermined maximum thickness, the controller **200** may send a signal to the indicator **110**, as discussed above, and/or prevent power from powering the motor **18** to drive the shafts **20** and cutter elements **19**. This way, a jam may be prevented. Likewise, the measured displacement of the contact member **120** may be used by the controller **200** to output progressive amounts of thicknesses, as discussed above. Of course, different configurations of the strain gauge **122** and contact member **120** may be used. The illustrated embodiment is not intended to be limiting in any way.

In another embodiment, illustrated in FIG. **9**, the detector **100** includes the contact member **120** and a piezoelectric sensor **124**. In this embodiment, the contact member **120** is mounted such that it protrudes through one wall **126** of the throat and into the throat by a small amount, thereby creating a slightly narrower throat opening. A spring **128** may be used to bias the contact member **120** into the throat **36**. The narrower opening that is created by a tip **130** of the contact member **120** and a wall **132** opposite the spring **128** is less than the predetermined maximum thickness. Therefore, if an item that is too thick to be shredded enters the throat **36**, it will engage a top side **134** of the contact member **120**. Because the top side **134** of the contact member **120** is sloped, the contact member **120** will move against the bias of the spring **128** and into contact with the piezoelectric sensor **124**, thereby causing a voltage to be created within the piezoelectric sensor **124**. As the thickness of the item increases, the force applied by the contact member **120** to the piezoelectric sensor **124** increases, thereby increasing the voltage generated within the piezoelectric sensor **124**. The resulting voltage may be communicated to the controller **200** or directly to the indicator **110**, thereby causing the indicator **110** to indicate that the item is above the predetermined maximum thickness. In addition, the controller, upon sensing the voltage, may prevent power from powering the motor **18** to drive the shafts **20** and cutter elements **19**. Of course, different configurations of the piezoelectric sensor **124** and contact member **120** may be used. The illustrated embodiment is not intended to be limiting in any way.

In another embodiment, illustrated in FIG. **10**, the detector **100** includes the contact member **120** and an optical sensor **140**. In this embodiment, the contact member **120** is pivotally mounted such that one portion extends into the throat **36** and another portion, which has a plurality of rotation indicators **142**, extends away from the throat **36**. The optical sensor **140** may be configured to sense the rotation indicators **142** as the rotation indicators **142** rotate past the optical sensor **140**. For example, the optical sensor **140** may include an infrared LED **144** and a dual die infrared receiver **146** to detect the direction and amount of motion of the contact member **120**. As shown in FIG. **7**, the contact member **120** may be configured such that a small amount of rotation of the contact member is amplified at the opposite end of the contact member **120**, thereby improving the sensor's ability to sense changes in the thickness of the items that cause the contact member **120** to rotate. Of course, different configurations of the optical sensor **140** and contact member **120** may be used. The illustrated embodiment is not intended to be limiting in any way.

Another embodiment of the detector **100** that includes the optical sensor **140** is shown in FIG. **11**. As illustrated in FIG. **8**, the detector **100** is located above an infrared sensor **150** that detects the presence of an article. Of course, any such sensor may be used. The illustrated embodiment is not intended to be limiting in any way. The sensor **150** provides a signal to the controller **200**, which in turn is communicated to the motor **18**. When the sensor **150** senses that an article is passing through a lower portion of the throat **36**, the controller **200** signals the motor **18** to start turning the shafts **20** and cutter elements **19**. Of course, because the detector **100** is also in communication with the controller **200**, if the detector **100** detects that the thickness of the article that has entered the throat is too thick for the capacity of the shredder mechanism **16**, the shredder mechanism **16** may not operate, even though the sensor **150** has indicated that it is time for the shredder mechanism **16** to operate. Of course, this particular configuration is not intended to be limiting in any way.

Although various illustrated embodiments herein employ particular sensors, it is to be noted that other approaches may be employed to detect the thickness of the stack of documents or article being fed into the throat **36** of the shredder **10**. For example, embodiments utilizing eddy current, inductive, photoelectric, ultrasonic, Hall effect, or even infrared proximity sensor technologies are also contemplated and are considered to be within the scope of the present invention.

The sensors discussed above, and other possible sensors, may also be used to initiate the shredding operation by enabling the power to be delivered to the motor of the shredder mechanism. This use of sensors in the shredder throat is known, and they allow the shredder to remain idle until an

item is inserted therein and contacts the sensor, which in turn enables power to operate the motor to rotate the cutting elements via the shafts. The controller **200** may be configured such that the insertion of an item will perform this function of enabling power delivery to operate the shredder mechanism motor. The motor may be cut-off or not even started if the thickness exceeds the predetermined maximum thickness.

Returning to FIG. **6**, for embodiments of the shredder **10** that include the lubrication system **80**, the controller **200** may be programmed to communicate with the controller **96** associated with the lubrication system **80** to operate the pump **82** in a number of different modes. The controller **200** and the controller **96** may be part of the same controller, or may be separate controllers that communicate with each another. In one embodiment, the controller **96** is programmed to operate according to a predetermined timing schedule. In another, the controller **96** activates the pump upon a certain number of rotations of the drive for the cutter elements. In another embodiment, the detector **100** at the throat **36** of the shredder **10** monitors the thickness of items deposited therein. Upon accumulation of a predetermined total thickness of material shredded, the controller **96** activates the pump to lubricate the cutter elements **19**. For example, if the predetermined total thickness of material is programmed in the controller **96** to be 0.1 m (100 mm), then once the total accumulated detected thickness of articles that have been shredder is at least equal to 0.1 m (e.g., one hundred articles with an average thickness of 1 mm, or fifty articles with an average thickness of 2 mm, etc.), the controller **96** will activate the pump **82** of the lubrication system **80** to lubricate the cutter elements **19**.

It is also possible to schedule the lubrication based on a number of uses of the shredder (e.g., the controller tracks or counts the number of shredding operations and activates the pump after a predetermined number of shredder operations). In each of the embodiments making use of accumulated measures, a memory **97** can be incorporated for the purpose of tracking use. Although the memory **97** is illustrated as being part of the controller **96** associated with the lubrication system, the memory may be part of the shredder controller **200**, or may be located on some other part of the shredder **10**. The illustrated embodiment is not intended to be limiting in any way.

In addition, the accumulated measures (e.g. the number of shredding operations or the accumulated thickness of the articles that have been shredded) may be used to alert the user that maintenance should be completed on the shredder. The alert may come in the form of a visual or audible signal, such as the signals discussed above, or the controller may prevent power from powering the shedder mechanism until the maintenance has been completed.

The ability to keep track of the accumulated use of the shredder may also be helpful in a warranty context, where the warranty could be based on the actual use of the shredder, rather than time. This is similar to the warranties that are used with automobiles, such as "100,000 miles or 10 years, whichever comes first." For example, the warranty may be based on 100 uses or one year, whichever comes first, or the warranty may be based on shredding paper having a total sensed thickness of 1 meter or 2 years, whichever comes first, and so on.

FIG. **12** illustrates a method **300** for detecting the thickness of an item, e.g. a stack of documents or an article, being fed into the throat **36** of the shredder **10**. The method starts at **302**. At **304**, the item is fed into the throat **36** of the shredder **10**. At **306**, the detector **100** detects the thickness of the item. At **308**, the controller **200** determines whether the thickness that has been detected is greater than a predetermined maximum thickness. The predetermined maximum thickness may be based on the capacity of the shredder mechanism **16**, as discussed above. If the controller **200** determines that the thickness that has been detected is at least the predetermined maximum thickness, at **310**, a warning is provided. For example, to provide the warning, the controller **200** may cause the red light **116** to illuminate and/or causes an audible signal to sound and/or cause power to be disrupted to the motor **18** so that the shredder mechanism **16** will not shred the item. The user should then remove the item from the throat **36** of the shredder **10** at **312**, and reduce the thickness of the item at **314** before inserting the item back into the throat **36** at **304**.

If the controller **200** determines that the thickness that has been detected is less than the predetermined maximum thickness, the controller **200** may cause the green light **112** to illuminate and/or allows power to be supplied to the shredder mechanism **16** so that the shredder **10** may proceed with shredding the item at **316**.

In the embodiment that includes the plurality of yellow lights **114** as part of the indicator **100**, if the controller **200** determines that the thickness that has been detected is less than the predetermined maximum thickness, but close to or about the predetermined maximum thickness, the controller **200** may cause one of the yellow lights to illuminate, depending on how close to the predetermined maximum thickness the detected thickness is. For example, the different yellow lights may represent increments of about 0.1 mm so that if the detected thickness is within 0.1 mm of the predetermined maximum thickness, the yellow light **114** that is closest to the red light **116** illuminates, and so on. Although power will still be supplied to the shredder mechanism **16**, the user will be warned that that particular thickness is very close to the capacity limit of the shredder **10**. Of course, any increment of thickness may be used to cause a particular yellow light to illuminate. The example given should not be considered to be limiting in any way.

Returning to the method **300** of FIG. **9**, at **318**, the user may insert an additional item, such as another document or stack of documents, as the shredder mechanism **16** is shredding the previous item that was fed into the throat **36** of the shredder at **304**. If the user does insert an additional item into the throat **36** at **318**, the method returns to **304**, and the detector **100** detects the thickness of the item at the location of the detector **100** at **306**, and so on. If part of the previous item is still in the throat **36**, the cumulative thickness of the item being shredder and the new item may be detected. If the user does not add an additional item at **318**, the method ends at **320**. The illustrated method is not intended to be limiting in any way.

The foregoing illustrated embodiments have been provided to illustrate the structural and functional principles of the present invention and are not intended to be limiting. To the contrary, the present invention is intended to encompass all modifications, alterations and substitutions within the spirit and scope of the appended claims.

What is claimed is:

1. A shredding machine for shredding sheet material, the machine comprising a feed-aperture and an electric cutting mechanism, the feed-aperture being configured to receive multiple sheets and direct said sheets in a feeding direction towards the cutting mechanism for shredding, the machine being characterized by the provision of a thickness detector which is moveable between a first position in which the thickness detector permits energization of the cutting mechanism and a second position in which the thickness detector prevents energization of the cutting mechanism, wherein part of the thickness detector extends into the feed-aperture, the thickness detector being configured such that said part will be engaged by sheet material inserted in the feeding direction

into the feed-aperture prior to reaching the cutting mechanism, and moved from said first position to said second position as a result of said engagement, if the sheet material exceeds a predetermined thickness; further provided with maximum thickness indicating means to provide a visual indication to a user of the machine that energization of the cutting mechanism is prevented due to the sheet material moving said part of the thickness detector to said second position,

wherein said thickness detector is provided in the form of an elongate arm mounted for pivotal movement between said first and second positions.

2. A shredding machine according to claim **1**, wherein said thickness detector is arranged to actuate a switch when in said second position, the switch being configured to cause a break in the circuit providing power to the cutting mechanism, and wherein the extent of the arm extending from the pivot axis of the arm into the feed-aperture is less than the extent of the arm extending from the pivot axis to the switch.

3. A shredding machine according to claim **2**, wherein the pivot axis is located substantially adjacent the feed-aperture.

4. A shredding machine according to claim **2**, wherein said switch is located remote from said pivot axis.

5. A shredding machine for shredding sheet material, the machine comprising a feed-aperture and an electric cutting mechanism, the feed-aperture being configured to receive multiple sheets and direct said sheets in a feeding direction towards the cutting mechanism for shredding, the machine being characterized by the provision of a thickness detector which is moveable between a first position in which the thickness detector permits energization of the cutting mechanism and a second position in which the thickness detector prevents energization of the cutting mechanism, wherein part of the thickness detector extends into the feed-aperture, the thickness detector being configured such that said part will be engaged by sheet material inserted in the feeding direction into the feed-aperture prior to reaching the cutting mechanism, and moved from said first position to said second position as a result of said engagement, if the sheet material exceeds a predetermined thickness; further provided with maximum thickness indicating means to provide a visual indication to a user of the machine that energization of the cutting mechanism is prevented due to the sheet material moving said part of the thickness detector to said second position;

wherein the part of the thickness detector extending into the feed-aperture extends through an opening in a wall that at least partially defines the feed-aperture;

wherein said thickness detector is provided in the form of an elongate arm mounted for pivotal movement between said first and second positions.

6. A shredding machine according to claim **5**, wherein said thickness detector is arranged to actuate a switch when in said second position, the switch being configured to cause a break in the circuit providing power to the cutting mechanism, and wherein the extent of the arm extending from the pivot axis of the arm into the feed-aperture is less than the extent of the arm extending from the pivot axis to the switch.

7. A shredding machine according to claim **6**, wherein the pivot axis is located substantially adjacent the feed-aperture.

8. A shredding machine according to claim **6**, wherein said switch is located remote from said pivot axis.

9. A shredding machine for shredding sheet material, the machine comprising a feed-aperture and an electric cutting mechanism, the feed-aperture being configured to receive multiple sheets and direct said sheets in a feeding direction towards the cutting mechanism for shredding, the machine being characterized by the provision of a thickness detector which is moveable between a first position in which the thickness detector permits energization of the cutting mechanism and a second position in which the thickness detector prevents energization of the cutting mechanism, wherein part of the thickness detector extends into the feed-aperture, the thickness detector being configured such that said part will be engaged by sheet material inserted in the feeding direction into the feed-aperture prior to reaching the cutting mechanism, and moved from said first position to said second position as a result of said engagement, if the sheet material exceeds a predetermined thickness; further provided with maximum thickness indicating means to provide a visual indication to a user of the machine that energization of the cutting mechanism is prevented due to the sheet material moving said part of the thickness detector to said second position;

further comprising a presence sensor along the feed-aperture for detecting a presence of the sheet material inserted into the feed-aperture, and a controller coupled to the thickness detector, the presence sensor, the maximum thickness indicating means, and the electric cutting mechanism,

wherein the controller is configured to start energization of the cutting mechanism only in response to the presence sensor detecting the presence of the sheet material inserted into the feed-aperture and the part of the thickness detector not having been moved to the second position by the sheet material;

wherein the controller is configured to prevent the starting of energization of the cutting mechanism and also actuate the maximum thickness indicating means to provide the visual indication in response to the part of the thickness detector moving to the second position.

10. A shredding machine according to claim **9**, wherein said thickness detector includes a sensor and the part is coupled to a detectable element movable for detection by the sensor, and wherein said thickness detector is configured such that movement of said part in the feed-aperture amplifies movement of the detectable element at the sensor.

11. A shredding machine for shredding sheet material, the machine comprising:

a feed-aperture;

an electric cutting mechanism, the feed-aperture being configured to receive multiple sheets and direct said sheets in a feeding direction towards the cutting mechanism for shredding;

a controller coupled to the cutting mechanism;

a thickness detector coupled to the controller, the thickness detector having a part extending into the feed-aperture and being moveable such that said part will be engaged by sheet material inserted in the feeding direction into the feed-aperture prior to reaching the cutting mechanism, and moved from a first position to a second position as a result of said engagement, if the sheet material exceeds a predetermined thickness;

said controller being configured to, during insertion of the sheet material into the feed-aperture, permit energization of the cutting mechanism prior to the part of the thickness detector reaching the second position and prevent energization of the cutting mechanism responsive to said part of the thickness detector reaching the second position; and

a maximum thickness indicator for providing a visual or audible indication to a user of the machine that energi-

zation of the cutting mechanism is prevented due to the sheet material moving said part of the thickness detector to said second position;

further comprising a presence sensor along the feed-aperture for detecting a presence of the sheet material inserted into the feed-aperture, the controller being coupled to the presence sensor and the maximum thickness indicator,

wherein the controller is configured to start energization of the cutting mechanism only in response to the presence sensor detecting the presence of the sheet material inserted into the feed-aperture and the part of the thickness detector not having been moved to the second position by the sheet material;

wherein the controller is configured to prevent the starting of energization of the cutting mechanism and also actuate the maximum thickness indicator to provide the visual or audible indication in response to the part of the thickness detector moving to the second position.

12. A shredding machine according to claim **11**, wherein said thickness detector includes a sensor and the part is coupled to a detectable element movable for detection by the sensor, and wherein said thickness detector is configured such that movement of said part in the feed-aperture amplifies movement of the detectable element at the sensor.

13. A shredding machine for shredding sheet material, the machine comprising a feed-aperture and an electric cutting mechanism, the feed-aperture being configured to receive multiple sheets and direct said sheets in a feeding direction towards the cutting mechanism for shredding, the machine being characterized by the provision of a thickness detector which is moveable between a first position in which the thickness detector permits energization of the cutting mechanism and a second position in which the thickness detector prevents energization of the cutting mechanism, wherein part of the thickness detector extends into the feed-aperture, the thickness detector being configured such that said part will be engaged by sheet material inserted in the feeding direction into the feed-aperture prior to reaching the cutting mechanism, and moved from said first position to said second position as a result of said engagement, if the sheet material exceeds a predetermined thickness; further provided with maximum thickness indicating means to provide a visual indication to a user of the machine that energization of the cutting mechanism is prevented due to the sheet material moving said part of the thickness detector to said second position;

wherein said thickness detector includes a sensor and the part is coupled to a detectable element movable for detection by the sensor, and wherein said thickness detector is configured such that movement of said part in the feed-aperture amplifies movement of the detectable element at the sensor.

14. A shredding machine for shredding sheet material, the machine comprising:

a feed-aperture;

an electric cutting mechanism, the feed-aperture being configured to receive multiple sheets and direct said sheets in a feeding direction towards the cutting mechanism for shredding;

a controller coupled to the cutting mechanism;

a thickness detector coupled to the controller, the thickness detector having a part extending into the feed-aperture and being moveable such that said part will be engaged by sheet material inserted in the feeding direction into the feed-aperture prior to reaching the cutting mechanism, and moved from a first position to a second position as a result of said engagement, if the sheet material exceeds a predetermined thickness;

said controller being configured to, during insertion of the sheet material into the feed-aperture, permit energization of the cutting mechanism prior to the part of the thickness detector reaching the second position and prevent energization of the cutting mechanism responsive to said part of the thickness detector reaching the second position; and

a maximum thickness indicator for providing a visual or audible indication to a user of the machine that energization of the cutting mechanism is prevented due to the sheet material moving said part of the thickness detector to said second position;

wherein said thickness detector includes a sensor and the part is coupled to a detectable element movable for detection by the sensor, and wherein said thickness detector is configured such that movement of said part in the feed-aperture amplifies movement of the detectable element at the sensor.

* * * * *

CERTIFICATE OF SERVICE

The undersigned hereby certifies that true and correct copies of the foregoing Corrected Brief of Appellant were served on January 30, 2015 by CM-ECF upon all counsel of record. I further certify that I cause a copy to be served by electronic mail upon the following:

William P. Atkins
Bryan Patrick Collins
Robert M. Fuhrer
Jack Lin
Pillsbury Winthrop Shaw Pittman LLP
1650 Tysons Blvd. 14th Floor
McLean, VA 22102-4859
Telephone: 703-770-7900
Facsimile: 703-770-7901

Attorneys for Appellee Fellowes, Inc.

Richard L. Kaiser
Michael Best & Friedrich LLP
100 East Wisconsin Avenue
Milwaukee, Wisconsin 53202
Telephone: (262) 956-6576

Attorney for Appellant
ACCO Brands Corporation

By: */s/Steven R. Trybus*

CERTIFICATE OF COMPLIANCE

I hereby certify that this brief complies with the type-volume limitation under Fed. R. App. P. 32(a)(7)(B). There are 10,621 words in the portions of the brief specified by the Federal Circuit Rules as measured by the word processing software used to prepare the brief.

This brief also complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6). This brief has been prepared in proportionally spaced typeface using Microsoft Word 2007 with 14 point Times New Roman.

By: */s/Steven R. Trybus*